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**BEING AND BECOMING REFLEXIVE  
IN TEACHER EDUCATION**

A thesis  
submitted in fulfilment  
of the requirements for the degree  
of

Doctor of Philosophy

at the  
University of Waikato

by

BEVERLEY E. NORSWORTHY

2008

The University of Waikato  
Hamilton  
New Zealand

## Abstract

Initial teacher education is constantly in the spotlight regarding its quality and its effectiveness. The literature contains many claims from those who believe that it is ineffectual. The notion of the reflective practitioner was introduced and embraced as an antidote to these claims, and as an approach to break the influence of technocratic beliefs and expectations which pre-service teachers bring with them to their initial teacher education. Typically reflection targets the practicum experience. However, this study focuses specifically on the contribution of course work to the development of a reflective beginning teacher.

This qualitative study invited pre-service teachers to provide insight into their initial teacher education experience: initially within a *Teaching of Science* methods paper, and then some 18 months later at the conclusion of their three year Bachelor of Education (Teaching) professional preparation. A critical reflexive interpretive methodology which sought authenticity within its meaning-making process developed from an initial consideration of self-study research methodology. Of particular importance was that the enquiry was authentic, participants' voices were valued and recognition was given to the implications embedded within the context within which the study occurred. Methods of data collection included in phase one were: a pre-course questionnaire, a Gestalt-like activity, and pre-service teachers' email reflections based on Hoban's (2000a) categories of learning influences, and meta-reflections from the *Teaching of Science* paper. The journal I kept during this phase was also drawn upon as data. Phase two data collection included a vignette, and a three part final questionnaire to which 40 pre-service teachers and nine teacher educators responded.

The findings suggest that pre-service teachers' understanding of the nature of education is critical to the way in which they experience the course work within initial teacher education. This understanding shapes their *perception and consideration lens* through which course work is experienced. On entrance to initial teacher education this lens is described, for many pre-service teachers, as

technocratic. Education is seen as a commodity, something to acquire, teaching is telling and initial teacher education is dependent on the teacher educator providing the necessary tools and techniques so the beginning teacher can do the right thing.

This study suggests that such a stance toward educational experiences is a hindrance mechanism when teacher educators seek transformative teaching, learning, and reflexivity. However, when that view of education is as a process of growth and transformation toward a valued ‘way of being’, the perspective and consideration lens is described as professional. Rather than focusing on what a teacher does, the focus is on whom the teacher is and how this influences the teaching and learning process. Teacher educators and the institution which is the context within which course work occurs also demonstrate a mixture of technocratic and professional lenses. Important factors within initial teacher education which contribute to transformation from technocratic to professional lens include relational and pedagogical connectedness. These factors lead to valuing, ownership and justification of learning where assessment tasks are tools for personal development and where critical consideration of multiple perspectives has an important role. Relational connectedness (to self, peers, and teacher educators) is important for developing a safe, but challenging, dialogical space in which paradoxes, challenges and pre-service teachers’ vulnerable sense of disorientation may be engaged. Pedagogical connectedness relates to the fit between what the teacher educator says and does. For example, a powerful approach to learning is where the pre-service teachers learn to be reflexive, by being reflexive. The study indicates the importance of institutional congruency so that what is espoused is experienced through language, assessment, teaching approaches and contextual culture. However, pre-service teachers’ perception and consideration lens determines the degree to which course work is transformational. Where a technocratic lens is dominant, reflection becomes a task to be completed. Where a professional lens is dominant, reflection becomes an *iterative* process for improving practice by becoming professionally self aware through identifying assumptions in decisions and responses within the learning/teaching relationship, and judging those assumptions for their appropriateness in the light of a developing and critiqued *personally owned* educational vision.

## Acknowledgements

This thesis is dedicated to Eileen Florence Steele, my mother who at the age of 91 continues to be my most avid and consistent encourager and supporter. Without fail she has believed that this endeavour was a worthy investment of time and energy. Throughout the troubled times within which this work occurred she continually encouraged me to persevere. Her unswerving belief is a key reason why this thesis is finally completed.

My sincere thanks are extended to my chief supervisor, Deborah Fraser whose challenging and insightful comments have continually enriched my thinking and sense of being. The questions she posed have helped me to find, enjoy and even rejoice in the dynamic, complex and apparent unpredictable reality which is research. Though I am sure that at times it was frustrating, I genuinely thank her for not “telling me” ways forward but for patiently continuing to pose questions and offer observations. Such unselfish mentoring meant that when the “aha” moment or breakthrough came – the joy of discovery was mine. I have appreciated our conversations as they have enabled me to find some of “the hidden wholeness” that lies beneath the broken surface of life.

To Stephen May, thank you for your insightful and challenging observations particularly in relation to the literature review.

To the pre-service teachers who journeyed through the *Teaching of Science* paper, and then made some of their own work available as data for the thesis, believing that this work would be in the interest of future teacher education, I say thanks. Without their risk-taking – there would be no story to tell and no contribution to make. Similarly, to my colleagues (past and present) for their contribution to the thesis, and ongoing interest and encouragement, I am most appreciative. I am also thankful to have worked in an institution which enabled some of the findings from this study to influence our daily work.

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# Chapter One

## Introduction

### 1. Observations from a teacher educator

Wide agreement exists that, while curriculum targets intended outcomes, students experience the planned curriculum differently. People construct their own understanding depending on various factors. This is certainly the case within teacher education where pre-service teachers' engagement with the planned curriculum leads to meaning making which is far from homogeneous. Teacher educators can better understand the meanings pre-service teachers construct by exploring what approaches to learning shape this meaning making.

As a teacher educator, I observed that pre-service teachers in the same programme, and with the same teaching staff, developed distinctly different approaches to learning and teaching. This observation was not about personality differences – but about the way they engaged with their initial teacher education and the vocation of teaching. The following two real life scenarios from one particular set of practicum observations provided the impetus and motivation for the study.

Deanne<sup>1</sup> was a third year pre-service teacher, on her full control placement. I observed her teaching and noticed that all her questions tended to be closed, requiring yes or no answers. In the usual observation debrief we discussed my observation and the theoretical concepts in her *Teaching and Learning* paper relating to effective questioning strategies, in particular the advantages, for student thinking and learning, of open-ended questions. In a latter conversation, Deanne relayed to me that she had thought about my conversation with her, and that she would not change her practice. She explained clearly that when she used closed questions, more students put their hands up to answer the question than when she used open-ended questions. This meant that she could then direct the open ended

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<sup>1</sup> Not her real name



questions to those students who had committed themselves to involvement through indicating a willingness to answer the closed question, though they did not seek to be involved if she started with the more demanding open ended questions.

Here was a pre-service teacher who was confident in her practice to the point that she would continue with her practice in the face of advice from the visiting lecturer, an experienced other with the responsibility and power to grade what she did. Deanne was more interested in her students' learning than she was in maintaining the status quo or pleasing the college lecturer. This quality is unusual in pre-service teachers who, on the whole seek to maintain the status quo and often feel intimidated by experts and therefore, are likely to acquiesce when challenged.

Deanne's practice can be compared to that of Markus<sup>2</sup> another pre-service teacher from the same initial teacher education cohort. Markus was teaching a group of 11 and 12 year old students focused on the novel, *The Cay*. What I observed was a lesson that did not reflect the theory to which this pre-service teacher had been exposed. There was no apparent attempt to engage the students' prior knowledge, or to make connections with students' current scenarios. It was not apparent that Markus was familiar with the novel. I gained the impression that he was 'winging' both questions and responses, ignoring possibilities for teaching within student responses in a manner which gave the impression of a task to complete. There was little or no evidence of theory which underpins effective lesson plan development, of learning styles, of motivation, of engagement, of concept processing, or, of human development. This was despite the fact that engagement with such theories had been carefully modelled for the pre-service teacher by his college lecturers. With the realisation that Markus had been in the same cohort as Deanne, I asked myself the questions: Did he 'know' this material? Did he think about his students' learning in his preparation and teaching? Did he prepare? What were the espoused theories shaping his practice? This particular pre-service teacher would have been quite capable of describing relevant components of theories *and* argue for their importance. He chose not to implement them or let them shape his practice. Consequently, one may be tempted to say that there was no theory to practice integration. However, we know that all action is informed by some theory. I came

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<sup>2</sup> Not his real name

to the conclusion that another theory had more power and influence in guiding his behaviour.

In contrast to Deanne, Markus appeared oblivious to the impact of his practice on his students, and was apparently able to proceed through a lesson without any obvious care that students learn. Markus is not unintelligent. In fact if we were to compare Deanne with Markus in the light of entrance records, it would appear that Markus presented as more intelligent and academically able than Deanne.

However, when questioned about this lesson, he was unable to describe any rationale for his behaviour and could not identify what beliefs shaped or sustained his decision to 'teach' in a manner which to the outside observer was without apparent due regard to the students' need to learn.

As I sought to gain understanding of the above scenario, important questions were considered. How might one account for such different outcomes given that Deanne and Markus enrolled in the same course at the same time? They have had the same opportunities to develop as beginning teachers. Deanne appeared to demonstrate more characteristics of an effective teacher (Cripps Clark & Walsh, 2002; Hamachek, 1999; Kitchen, 2005) and yet Markus was still exhibiting characteristics of a person who has yet to make the transition from student to teacher in his thinking (Maynard & Furlong, 1993; Westerman, 1991). He appeared to view teaching as telling and worked from a self-centred perspective, rather than from an ethical commitment to his students' learning.

What has Deanne experienced, learned or developed that led her to demonstrate more thoughtful consideration about her practice? Why did this happen to Deanne, but not to Markus? Or, is the difference something which Deanne already had on entrance to the programme? And if we knew the answer to this question, how does one facilitate and scaffold movement from one state to another? What are the distinctive characteristics of a teacher education programme that would prepare effective, reflective beginning teachers?

Most pre-service teachers enter teacher education programmes with 13 years of school experience and as a result of their observations during this time, they have built up their own ideas and beliefs about teaching (Berry, 2004; Grossman, 1991;

Lortie, 1975; Smith & Latosi-Sawin, 2000). Despite an intention to do otherwise, beginning teachers tend to teach as they were taught (Feiman-Nemser, 1983; Lortie, 1975; Salomon, 1998). The influence of teacher education programmes is often unpredictable and apparently indirect (Reiman & Thies-Sprinthall, 1995). Any intervention in a time of professional training is seen to be too little and too thin to separate them from what their experience has taught them about teaching. Zeichner (1986, p. 142) is well known in the field for his findings on this perspective:

... there is much evidence that pedagogical methods and content knowledge introduced to students in campus courses has little influence on the subsequent actions of students in classrooms even during initial training.

Teacher educators are hopeful of overcoming this influence through encouraging their pre-service teachers in the process of reflection (Bean & Stevens, 2002; Ferraro, 2000; Thorpe, 2004). Such an approach is supported by the fact that effective teachers are described in the literature as being ‘reflective practitioners’. Consequently, initial teacher education programmes claim, to a lesser or greater degree, to be informed by the notion of ‘reflection’ and to graduate beginning teachers who are ‘reflective practitioners’. However, a rewriting of Brookfield’s assertion reminds teacher educators that one of the hardest things we have to learn is that “the sincerity of our intentions does not guarantee the purity of our practice” (1995c, p. 1). This is particularly so when it comes to the notion of ‘reflective practice’.

## **2. The issue**

In writing about the relationship between reflective teachers, teacher educators and school pupils, Jack Whitehead raises a series of questions which are summed up in the following: “What evidence do you have that you have influenced a teacher’s education and that this influence is being expressed in the educational development of a pupil?” (1995, p. 126). While the teacher education scene continues to be fraught with challenge and suspicion and those who work within it continue to seek recognition and a sense of legitimacy for their endeavour and contribution within the university echelon (Berry, 2004; Dinkleman, 2003; Liston, 1995), the question posed by Whitehead still needs to be addressed.

Teacher education is a field which attracts much attention, doubt, criticism, reviews and challenges (Cameron & Baker, 2004; Hoban, 2004). For example, between 1996 and 2001 New Zealand teacher education withstood five different reviews<sup>3</sup> organised by a range of interested stakeholders. Two other reports<sup>4</sup> commissioned by the Ministry of Education and the New Zealand Teachers Council were undertaken between 2004 and 2005. The aim of these reports was to provide the basis for evaluation of previous critiques which had questioned the quality of programmes and their graduating teachers. Teacher education provision is moderated and monitored by a plethora of bodies and continues to be treated with suspicion and doubt while at the same time being recognised as important, even critical to the nation's wellbeing.

The introduction to *the Final Report of Initial Teacher Education Policy and Practice*, reads:

Initial Teacher Education is the focus of increasing interest in New Zealand (and internationally), as agencies responsible for the preparation of teachers seek to answer critique from many quarters. . . . Current government policies on teaching quality and anecdotal evidence of concerns about quality of beginning teachers reinforce the need for research that examines ITE and provides a credible evidence base of the nature and quality of qualifications currently available. (Kane, 2005, p. 1)

While there is some nervousness about how this report will be put to use, it is yet another example of initial teacher education programmes and providers<sup>5</sup> being called to public account. At the same time, debate about the place and role of standards or competencies is current, with the New Zealand Teachers<sup>6</sup> Council having released national Standards for Graduating Teachers early in 2007 and expecting to release the final version of its Satisfactory Teacher Dimensions in 2008. In New Zealand, despite numerous reviews and critique, there appears to have been little progress in addressing issues of concern or in reaching agreement on fundamental principles for initial teacher education. Similarly, in Australia, Dyson (2003) noted that teacher education “is in crisis and once again at the

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<sup>3</sup> The five reviews referred to are: Education Review Office (1996), Geoffrey Partington (1997) on behalf of the NZ Education Forum, Education Review Office (1999), Te Puni Kokiri (2001), Education and Science Select Committee (undertaken in 2001, published 2004).

<sup>4</sup> Cameron & Baker (2004), Kane (2005)

<sup>5</sup> Since the 1991 Education Act change to open teacher education provision to institutions other than the six Colleges of Education, the number of teacher education providers in New Zealand burgeoned to thirty three and has now reduced to 22. Recently all Colleges of Education have merged with their local university.

<sup>6</sup> There is no apostrophe in this name

crossroads. . . . This is in spite of frequent and invasive change over the last 150 years of formal teacher education” (p. 1). He pointed to the fact that repeated revisiting of the same issues (supply versus demand; theory versus practice; profession or craft, teacher training versus teacher education) has continued to exert constant pressure on initial teacher education without resolution or achievement of balance.

One problem which flows from current approaches to teacher education relates to the disjointed nature of individual courses within programmes. Pre-service teachers tend to experience teacher education as a compilation of unconnected modules of study (Bates, 2002; Hoban, 2004; Sankey, 2001). Pre-service teachers are often able to pick and choose from a myriad of options, one result of which is a lack of coherency and opportunity for integration of knowledge. While passionate about their own papers, those teaching such papers do not necessarily commit to a shared understanding of how each course contributes to the development of the beginning teacher who is a reflective practitioner. And so, it is left to the neophyte, the pre-service teacher, to draw through understandings and insights to the reflective moment. The evidence so far suggests that this seldom appears to happen. For example, rather than engaging sociological components in the practicum situation, pre-service teachers tend to emphasise the pragmatic aspects of teaching. Consequently, reflection is aimed at the pragmatic procedures in the classroom at the expense of the more ‘critical’ focus for which it is valued (Gilbert, 1994). According to Bates (2002, p. 3):

It appeared that often students were confronted with a smorgasbord of offerings, each of which might have some theoretical or practical justification but which were not accompanied by any space in which sense could be made of their experiences as a whole. Many programmes did appeal to notions of 'reflective practice' or 'constructivism' but failed to provide the tools for reflection and integration or the space within which to do it.

The practicum experience, which for students usually remains the favourite component of initial teacher education (Eklund-Myrskog, 1996), is viewed as a place to “apply” what is learned in on-campus courses (Dobbins, 1996; Sankey, 2001).

Added to this apparent lack of cohesiveness is that very few pre-service teachers claim to see the connections between their initial teacher education programme and

their future career in teaching (Cripps Clark & Walsh, 2002). If pre-service teachers are to ask questions of their observations and teaching, then questions other than the typical ‘what?’ and the ‘how?’ need to be addressed. However, studies show that this is not common during practicum experiences (Huang, 2001; Sanders, 1999). For example, Sanders (1999) analysed 356 interactions between pre-service teachers and their associate teachers in terms of Balch and Balch’s (1987) eight<sup>7</sup> different types of interactions. Findings reported that minimal attention (1%) was paid to the role of *Conferencer*, where dialogue about reasons underpinning decisions, or the ‘Why?’ question, were more likely to be addressed. A current replication of this study, has found little change in these statistics (Sanders, Personal communication, 15 December, 2004). Dobbins (1996) reported on an exception to the usual scenario in a study which embedded the process of reflection at the heart of the practicum experience in order to scaffold and support pre-service teachers in making meaningful interpretations of their practicum teaching experiences. Of particular importance in this instance was the opportunity that the reflective process provided for “the learning process to be personalised” (p. 62). The process of reflection which underpins the notion of ‘reflective practice’ and ‘reflective practitioner’ lacks conceptual clarity and consequently the baggage that comes with the term may be more of a hindrance than help (Hawkey, 1995; LaBoskey, 1994; McMahon, 1997).

The promise of change, emancipation and informed teaching which has so often been associated with reflection tends not to have materialised and ‘the common conclusion is that there is little evidence of critical reflection on the part of students’ (Hatton & Smith, 1995, p. 8). One may conclude that the notion of reflection itself, while necessary, is not sufficient to explain the unexpected and disappointing lack of intervention and change in beginning teachers’ practice. If ‘reflectivity’ or ‘reflective practice’ is indeed a characteristic of professional teachers, and teacher education programmes are committed to the development of professional teachers, then it would appear critical that we explore effective ways to influence those who are enrolled in initial teacher education programmes toward this end. This study contributes to such an exploration.

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<sup>7</sup> Balch and Balch (1987, pp. 30, 31) list the following as roles within the function of the Associate Teacher: model teacher, observer, planner, evaluator, conferencer, professional peer, counsellor, friend

Typically, the focus for reflection has been the theory-to-practice-fit and predominantly linked to the practicum, or practice of teaching. In fact Malderez and Bodóczy (1999, p. 16) stated: “It is during the practicum period that student teachers need to establish a reflective habit”. If this, along with a commitment to the notion of teacher as reflective practitioner were predominant, then initial teacher education would by now be fully practicum based. However, there are more factors involved; one of these is that many pre-service teachers appear to be resistant to engaging in reflective thought, particularly at anything other than a superficial level. Worthy of further investigation are both the reason for this behaviour, and ways in which teacher educators can provide learning experiences which require and scaffold pre-service teachers as they seek to break through apparent resistance.

While consideration of *reflection* and *reflective practice* are ubiquitous in teaching and teacher education literature, little appears to exist which focuses on developing learning contexts which actually enable, encourage and support development of reflective practice and the consequential reflective practitioners. Pre-service teachers tend to enter initial teacher education with the belief that course work provides the theory of teaching and their practicum experiences provide the practice. This dichotomy appears to be retained throughout the initial teacher education programme and into the beginning teacher experience (Graham & Thornley, 2000). The process of reflection has the potential to break this divide, and enable students to both identify the theory and practice within their own learning and teaching. However, if reflection remains anchored to the practical and practicum experiences, then its multi-faceted potential is unlikely to be realised. It appears that attention to initial teacher education programme design, and in particular the influence of such on the role of the teacher educator during course work, requires more focused attention and consideration if the potential within a reflective paradigm is to be realised.

### **3. Influential ‘course work’ factors**

Reflection as a concept and technique permeates teacher education programmes. What is missing is a congruency: between an individual reflective disposition, and

an institutional reflection as culture, as ‘the way we do things around here’.

Houston and Warner posited:

Providing structures and venues for prospective and in-service teachers to reflect on their professional judgments and actions permeates teacher education as a concept but not as a general practice. Education espouses this stance, but it remains an elusive target; teachers tend to continue to draw on expository forms of instruction, and their preparation and professional development continue to have inquiry and reflection as major voids. The rhetoric of inquiry and reflection reflects a deep commitment to these twin concepts, but the actual practice by teachers and teacher educators continues outmoded methods. (2000, pp. 129-130)

While it may be accepted that the course work components of initial teacher education could contribute to an increased understanding of the nature of reflection and its role in the life of a professional, one cannot assume that following through such a belief would be unproblematic. Much of the research available on *reflective practice* focuses on ‘the need’ and ‘method’ and is typically bound to either journaling or a specific classroom technique. What is not apparent within the literature is an understanding of the characteristics and/or structures deemed to be paramount within initial teacher education programmes in order to make it possible for pre-service teachers to *be* reflective about both their own learning and teaching. In other words, research needs to focus on the characteristics of initial teacher education experiences which result in effective teacher education in terms of reflection; of active engagement with the beliefs and experiences brought to initial teacher education as well as the theory and experiences encountered within a programme. Such focus will include consideration of pre-service teachers’ experience, teacher educators’ experience and also the influence of the tertiary institution and its policies and procedures.

Two particular beliefs are integrated throughout this study. First, one’s conceptual understanding of the nature and process of reflection is itself a mirroring of one’s worldview, and within that worldview, of one’s epistemology and consequential vision of teaching and role of education. Palmer (1993, 1998) suggests that knowledge as understood in our societal context must be related to human interests and passions that are often ignored. The importance of identifying beliefs inherent within the epistemological framework that informs or supports the metaphor or vision of teaching from which a pre-service teacher practises is held as critical in the process of reflection. The historic polarity of theory and practice will continue



to be problematic when reflection is linked only to practice and to school placement-related learning. Reflective practice that is valued and expected only within the school placement or field component of the teacher preparation programme will result in confirming the theory and practice divide. Second, self-awareness - “who we are as individuals and how we are perceived by others is an important step in the process of becoming a good teacher” (Hamacheck, 1999, p. 209) - is valued as critical to the process of professional development and reflection (Buford, 1995; Cranton, 1996, 1998; Lipka & Brinthaupt, 1999; Palmer, 1998).

Across diverse ideological positions those concerned with improving the quality of teacher education are advocating the need to attend to the person who is becoming a teacher. This means that key to what the teacher ‘*does*’ is who she<sup>8</sup>‘*is*’. Included are concepts such as ‘self-efficacy’, ‘self knowledge’, ‘identity’, ‘integrity’, ‘calling’ or ‘purpose’ and a balance between personal and professional learning. As indicated, how teachers perceive, understand and evaluate themselves as individuals is believed to be critical both to the process of effective teaching and to one’s willingness and ability to be a reflective professional. To be prepared to take the risks inherent in the process of reflection, to examine the beliefs and assumptions which underpin practice, the pre-service teacher needs to have self understanding, to be able to know his values, passions, purpose, strengths and shortcomings. Consequently, throughout this study, pre-service teachers or teacher educators are viewed as a unity, a whole person and therefore the inherent professional development within an initial teacher education programme will involve more than the process of cognition. Just as one who is wise does wise things, then pre-service teachers need to be reflective during course work as well as during, so called ‘practical’ components.

#### **4. Summary and outline of chapters**

Chapter Two outlines teacher education literature with particular emphasis on characteristics requisite for the development of ‘reflective practitioners’. This review will show that while many pre-service teachers bring a technocratic approach to their initial teacher education, teacher educators view this as a

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<sup>8</sup> For ease of reading the pronouns he or she are used randomly, rather than the clumsy s/he or she or he – unless such writing is part of a quote.

hindrance and tend to criticise, or ignore it rather than acknowledge it as a wealth of beliefs, images and expectations to be examined, refined, or abandoned.

Similarly there appears to be a mismatch between established principles of pedagogy and those principles which shape initial teacher education programmes and teacher educators' induction into the tertiary field. Finally, this literature review will indicate that few studies take cognisance of the role and impact of the institutional framework on the possibility of pre-service teachers developing as reflective practitioners. Consequently, this study considers the combination effect of these factors and asks, *What does pre-service course work contribute to the development of the reflective professional?*

Chapter Three introduces literature related to conceptual issues related to the study's methodology. This includes consideration of self-study as what appeared an appropriate methodological choice. However, throughout the study, and particularly its iterations, this initial belief was altered. Due to the perceived and experienced limitations, a self-study approach led to the development of an alternative, critical reflexive interpretive, methodology.

Chapter Four presents the methods utilised in the study and describes the tools and techniques used to collect the data. It also discusses and demonstrates data analysis approaches which were analysed in terms of choosing codes, defining categories and identifying and checking themes.

Chapter Five and Six present the findings from the study. Chapter Five reports findings from Phase One of data collection with particular emphasis on pre-service teachers' encounters with reflection within the *Teaching of Science* paper in the second year of their initial teacher education experience. Chapter Six reports findings from Phase Two of data collection where the emphasis is on the pre-service teachers' perceptions and considerations about how on campus course content contributes to their development as a reflective practitioner. The focus within this chapter includes data from teacher educators and factors related to the wider institutional context within which the pre-service teachers experienced their initial teacher education.

A detailed discussion of the findings is presented in Chapter Seven, which draws together the reported findings in the previous two chapters. The chapter discusses

key themes which emerged from the data. Each theme is illustrated by reference to the data and compared and contrasted with the existing literature. Where new insights emerge, these are highlighted.

The final chapter, Chapter Eight, concludes with the implications for knowledge in the fields of teacher education and reflection. This chapter also includes a brief case study of some changes made in the host institution from the iterative process which is this study. Further research related to these changes and the fields of teacher education and research are suggested.

## Chapter Two

### A Review of the Related Literature

#### 1. Introduction

The literature reviewed for this thesis is drawn from studies which focus on the experience of pre-service teachers and teacher educators within initial teacher education. Of particular interest is literature about reflection as it relates to overcoming the technical-rational approach to teacher education. The literature draws largely on studies from Australia, England and the United States of America, together with literature from a smaller selection available in New Zealand. While most of the studies employ a qualitative approach to research, some of these include quantitative data collection and analysis, and one study involves an intervention. The majority of data within these studies were collected via interviews, questionnaires and reflective writing such as journals. The empirical studies are drawn predominantly from the 1990s when the focus on reflection as a hopeful intervention into the technical-rational teacher paradigm appears to have been at its peak. The literature includes work published from Dewey in 1910 until the present day.

The first section of this review explores difficulties of, and dilemmas within, initial teacher education related to a dominant technical-rational approach. The second part of the review explores the promotion of teachers as reflective practitioners as the predominant hope to address the identified challenges with the technical-rational paradigm in initial teacher education and, consequently, in teaching. The origins of reflection are normally attributed to Dewey and in particular his 1910 work, *How We Think* and so, it is to his work that the third section turns in the first instance. Following Dewey's foundational ideas about reflection, the chapter presents a brief overview of some other contributors to the field starting with consideration of the work of Donald Schön. From the early 1980s onwards, literature from the field of adult learning and in particular the work of Habermas,

Mezirow and van Manen can be seen to be influential in a range of ways in which the notion of reflection has been approached in more recent teacher education programmes and courses. A specific focus on characteristics of a reflective approach to professional preparation and teacher education follows in the fourth part of the review. This includes consideration of a range of views and definitions related to the process of reflection and different ways in which the notion of reflection is approached and experienced by pre-service teachers. Included is literature related to reflective techniques and the questions of measuring and assessing reflection. Fifth, a critical consideration of why it is that the hope identified in the previous section of the review has not generally been either realised or effectively followed. The final section raises the question about characteristics of hopeful teacher education and considers the work of Vicki LaBoskey in particular. The chapter summary and conclusion leads to the research question considered at the heart of this study.

## **2. Teacher Education: Claims and dilemmas**

There are two recurring claims made in the field of teacher education which are particularly unnerving to teacher educators. These claims present teacher education as a weak intervention. Additionally, the way in which theory and practice are viewed is an ongoing dilemma. It is to these that we now turn.

### **2.1 Teacher Education: A weak intervention**

The first of these claims is that teacher education does not make any difference to the way beginning teachers teach, or if it does, then such change is unpredictable and indirect (e.g., Berry, 2004; Fletcher, 1997; Hatton & Smith, 1995; Kagan, 1992; Lowery, 2003; Zhou, 2002). For example, in relationship to the effectiveness of teacher education, Zhou (2002, p. 214) noted:

No research data show the graduates from teacher education programmes are over the longer term stronger in teaching than those who graduate from other programmes.

Similarly, Berry (2004, p. 1302) recorded:

There is little doubt that pre-service teachers' prior experiences as learners serve as powerful templates for the ways in which they practice as teachers. Their beliefs about teaching are informed by the accumulation of experience

over time and, once formed, these beliefs are extremely resistant to change, even when they are shown to be inconsistent with reality.

Literature reviewed resonates with Goodlad's (1990) findings that teacher education programmes value technique and rely on the socialization process to "nurture the ability to acquire teaching skills through experience rather than the ability to think through unpredictable circumstances" (p. 215). According to Goodlad, teacher education programmes lacked coherence, focused on individual teachers within individual classrooms rather than as members of a profession and, in the final account, were "not powerful or long enough to dissuade them from what has already been absorbed from role models" (p. 149).

The second claim is that teaching is a straightforward activity for which a matching straightforward teacher education can be provided. The thinking behind such a claim is outlined by Groundwater-Smith, Ewing and Le Cornu (2003, p. 4):

We believe that too often people's understanding of the work of school teachers is oversimplified and codified. It is as though by mastering a series of formulae and atomistic skills, it is possible to train those engaged in a teacher education course to become highly technically competent.

These two claims, that teacher education does not make a difference and, if needed, then it ought to be straightforward, uncomplicated and focus on training, have been heard continuously since the beginning of the 20<sup>th</sup> century. As is evident later in this chapter, such an approach to teaching and to teacher education is one reason why Dewey first drew attention to the need for teachers to think carefully about their work and the beliefs on which their practice is grounded. Similarly, Schön observed that many professional education courses had not recognised the nature of professional practice, and consequently relied on what he termed 'a technical-rational approach' (1983, p. 381) which taught procedures for solving well-defined problems with unique solutions. As Clarke (1994, p. 498) noted, "Technical rationality is based on an assumption that problems of practice are routine, knowable in advance and subjected to rule-like generalisations."

It appears that if initial teacher education is to be powerful enough to bring transformation then these two claims need to be disempowered. The review now considers these in terms of their implications for initial teacher education. Within the literature a common theme is that "Arguably the most contentious dimension of

initial teacher education programs is the nexus between theory and practice.” (Brady, Segal, Bramford & Deer, 1998, p. 1). (see also: Eklund-Myrskorg, 1996; Korthagen, 2001) – and it is to this dimension consideration is given first.

## **2.2 The theory/practice dilemma**

A view of theory as something separate from and applied to practice is an integral characteristic of the technical-rational model (Usher, Bryant & Johnston, 1997).

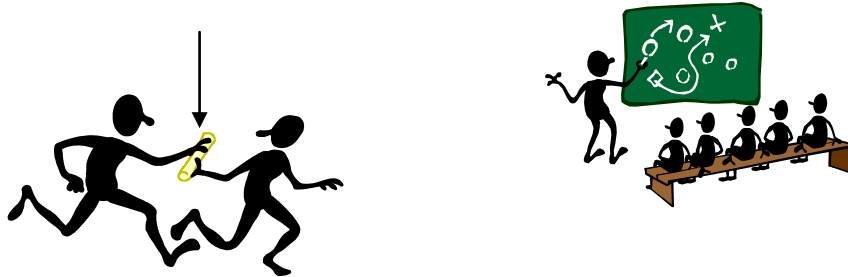
As Gilbert (1994, p. 517) acknowledged:

teacher development programmes having their basis in technicist models of education (and positivist conceptions of knowledge) – which set out to inform teachers of the results of a particular piece of research and then to ‘train’ them in procedures designed to produce the desired learning outcomes in students – have been largely unsuccessful in terms of their goal of achieving sustained changes in the classroom practices of experienced teachers.

Initially New Zealand’s teacher preparation, typically described as teacher training, sat securely on a behaviourist and developmental platform. Teacher preparation was seen to be a time during which the neophyte teacher would demonstrate that they could ‘do’ as ‘experienced’ and then latterly as “effective” teachers did. Effective teachers’ behaviour was captured by empirical, process-product research which then became the standard for beginning teachers to meet and emulate. Teacher education which concentrates on techniques rather than on knowledge-in-action or teacher decision-making is criticised for its view of teaching as “atheoretical and even anti-intellectual” (Cochran-Smith, 2004, p. 296).

Theory is aligned to knowledge produced from external sources, and ‘practice’, as that which teachers do, and which is improved through interaction with ‘theory’ (Korthagen & Wubbels, 2001). As well as regarding theory and practice as separate entities, traditionally they are linked to different learning contexts (Eklund-Myrskog, 1996). Responsibilities for explicating theory appear to be assigned to teacher educators and on-campus courses, while responsibilities for explaining and supervising practice are regarded as the domain of practising classroom teachers. Often this separateness results in certain knowledge being privileged in different contexts and teacher education programmes across continents continually debate which entity ought to be presented to pre-service teachers first (Loughran, 2002; Korthagen, 2001). Descriptions of traditional

teacher education place theory before practice and the teacher is viewed as technician who aims to ‘apply’ this theory in the practical setting. Figure 1 below represents this dichotomistic relationship in pictorial form:



**Figure 1: Receive and apply theory in classroom practice.**

By the 1980s there was a rising desire to view teaching as a profession. Consequently, a ‘training’ approach was deemed inappropriate. This led to a cry to abandon the use of ‘teacher training’ and replace it with ‘teacher education’. The new preferred wording was seen to better align with the more desirable view of teachers as professionals: those who were knowledgeable about the philosophy of education and the methods of teaching as well as subjects, and who responded to teaching dilemmas in a carefully considered manner, based on that knowledge and a sense of educational vision. But the rational-technical approach to teacher preparation is apparently not so easily abandoned. Given the fact that professionals have specific authoritative knowledge, research focused on building a knowledge base – to be ‘applied’ into teaching and teacher education fields. When established, it was expected that this would, in a strangely similar manner as the previous ‘training’ era, guide teachers’ professional decision-making.

The ways in which this relationship is articulated and conceptualised by the designers of teacher education programmes have major consequences for the way students experience their teacher education (Brady et. al., 1998; Loughran, 2002). The traditional model which separates ‘knowing what’ (theory) from ‘knowing how’ (practice) has been challenged extensively (e.g., Boud, Keogh & Walker, 1985; Brunner, 1994; Eraut, 1994; Korthagen, 2001; Loughran, 2002; Schön, 1983). While such an approach may not be the current espoused theoretical framework for a teacher education programme, it certainly is held in high regard by many pre-service teachers. On-campus components of initial teacher education



programmes are often viewed as a time to stockpile knowledge until a time to apply it in a practical setting arrives (Tom, 1997). Co-existing with such views:

Teacher education often seems to be perceived by those outside the profession, as little more than the transference of pedagogical tips, tricks and techniques, most of which will be rendered irrelevant when new teachers enter the classroom and begin their real learning about teaching. (Berry, 2004, p. 1297)

Korthagen and Wubbe (2001), referencing the work of Freudenthal, present an alternative view of the theory to practice relationship within what they term ‘realistic teacher education’. Here, practice rather than theory is experienced first and the pre-service teacher develops their “own knowledge in a process of reflection on practical situations, which creates a concern and a personal need for learning” (2001, p. 15). However, such a view does not adequately allow for the realities of the process of teacher education, which like teaching, is dynamic, complex and intensely personal. The call to ground pre-service teachers’ professional preparation in practical experiences is also problematic, given the desire to avoid early socialisation, confirmation of pre-existent beliefs about teaching, and reproducing the status quo.

#### *Teacher education and stage theories*

It is interesting to note that the same observation has led to both a reflective practitioner approach to teacher education and the development of stage theories. For example, Feiman-Nemser’s (1983) research claimed that learning to teach required engaging the beliefs, knowledge and experiences prospective teachers brought with them into teacher preparation programmes. This led in the late 1980s and 1990s to research focusing on how teachers developed from novice to expert over time. Similarly, Westerman (1991, p. 301) drew attention to the possibility that “teachers at different developmental stages perceive and process classroom problems in different ways”. This led to identifying a range of implications for teacher education in order to give “novices a comprehensive view of teaching and student learning similar to that which guides expert teachers” (p. 302). While it may not have been the intention, such stages were viewed as discrete and began, and in some cases, continue, to be influential in the setting of professional standards (e.g., O’Brien & Hunt, 2005), teacher education design, choice of appropriate pedagogical knowledge, and, practicum expectations. Berliner (1991), an author influential in teacher education design, described five stages of teacher

development from novice to expert teacher, giving cognisance to the fact that as teachers moved toward 'expert', the context played a bigger role. However, "The problem was that the sequential progression of the training programme was not always mirrored in the development of the student teachers" (Smith, 1998, p. 105). It appears that when teacher educators endeavour to design a programme around a highlighted research finding, and when the binary of theory and practice continues, rational-technicality appears difficult to avoid.

According to Ball (2000), "The gap between theory and practice fragments teacher education by fragmenting teaching" (p. 242) and tempts teacher educators to focus either on its cognitive demands, reasoning and decision-making, or on the teacher's behaviour or actions. As previously indicated, the fact that this fragmentation is further emphasised by placing the focus in different contexts exacerbates the situation further. It appears that while theory and practice are presented as separate objectified identities, teacher education remains in the grasp of a technical-rational paradigm and continues to affirm pre-service teachers' initial beliefs and expectations for their initial teacher education. So, is there hope? Can teacher education make a difference?

### **2.3 The Challenge: Can teacher education make a difference?**

This age old question as to whether teacher education actually can make a difference continues to surface. In 2001, Cochran-Smith set out to refute Ballou and Podgursky's (1999) conclusion that: "teacher ability appears to be much more a function of innate talents than the quality of educational courses" (p. 532). The literature appears to contain few studies such as that of Brownell, Ross, Colon, and McCallum (2005) who confidently claim that teacher education positively influences what teachers do and how their students perform. However, different interpretations are presented. The call to redesign teacher education and in particular "strengthen its knowledge base, its connections to both practice and theory and its capacity to support the development of powerful teaching" evoked a response from Darling-Hammond (2000). She claimed that "Reviews of research over the past 30 years have concluded that even with the shortcomings of current teacher education and licensing, fully prepared and certified teachers are generally better rated and more successful with students than teachers without this

preparation” (p. 167). What is interesting to note is that the research upon which she draws is from the same era as that undertaken by Wideen, Mayer-Smith and Moon (1998) who after reviewing some 93 empirical studies focused on different teacher education programmes, they, however, came to a different conclusion. They concluded that the literature overwhelmingly communicates concern with the lack of apparent positive influence on those who experience initial teacher education programmes. Pre-service teachers continue to be resistant to change, tend to imitation in their classroom practice and, while on practicum are committed for a variety of reasons to the continuance of the status quo (e.g., Feiman-Nemser, 1983; Lortie, 1975; Zeichner & Tabachnick, 1981). One response to this situation is that teacher educators put their hope in the process of reflection to bring about change in the way teaching is viewed and, as a consequence, is enacted.

#### **2.4 Summary and research needs**

This section has highlighted some of the ongoing challenges faced by teacher education providers and identifies a shared felt need to find a way forward which avoids the technical-rational influence of the theory/practice dichotomy. A recognition of the influences on teacher education contributed to the development of a philosophical and epistemological milieu into which the concept of ‘reflection’ and the related notion of ‘teacher as reflective practitioner’ could, and would, be heralded. The process of reflection has become the premise on which teacher education aspirations are founded. It is to this literature we now turn.

### **3. Reflection and initial teacher education**

The previous section identified the concern that, almost irrespective of the teacher education provider’s epistemological stance, pre-service teachers experience their initial teacher education, strongly influenced by their own ‘apprenticeship of observation’ (Lortie, 1975), and revert to a techno-rational approach to teaching. Initially, this section reports the overwhelming degree to which initial teacher education programmes have placed their hope in developing beginning teachers who are reflective as the key to overcoming the previously identified challenges. This hope is, in part, linked to wide agreement that reflection is a necessary professional characteristic. As Dewey is credited with the popularisation of the

term *reflection*, it is his work which provides the framework for the majority of this section. Schön's (1983, 1987) conceptualisation of the reflective process is followed with brief descriptions of other significant contributors to the field of reflection. The section concludes with a summary and leads into consideration of literature which is focused on the reflective approach in action.

### **3.1 Reflection: The hope of initial teacher education**

Teacher education literature within the past 20 years has seen an ever-increasing allegiance to the notions of reflection, reflective teaching and reflective practice (See e.g., Appleton, 1996; Brookfield, 1995b; Brown & McCartney, 1995; Calderhead & Gates, 1993; Conway, 2001; Ferraro, 2000; Groundwater-Smith, Ewing & Le Cornu, 2003; Korthagen, 2001; LaBoskey, 1993; McDrury & Alterio, 2002; Mayes, 2001b; Tabachnick & Zeichner, 1991). In 1990, Zeichner and Liston reported that in the 1980s, 'reflective teaching' and its closely associated terms "have become fashionable throughout all segments of the U.S. teacher education community" (p. 22). Similar statements can be found in other contexts. Calderhead (1989) and Martinez (1989) noted this phenomenon in Canada, Australia and the United Kingdom. British authors Bean and Stevens (2002, p. 205) have claimed that "[M]any teacher education programs worldwide tout the ability to reflect as one of the hallmarks of an effective educator".

Hoping for reform, teacher educators from all around the world have grasped hold of the concept of reflection to justify a wide range of approaches to teacher education. Zeichner (1999, p. 4) explained that he introduced the notion of reflective teaching into his teacher education programme in 1980 as "a way of symbolizing the kind of analytic, thoughtful, and purposeful approach to teaching that we wanted our graduates to possess." Such broad embracing of the notion of reflection and the reflective practitioner is based on the assumption "that the philosophy of reflective practice will create effective theory-practice links" (Brady et al., 1998, p. 2). (see also: Ferraro, 2000; Furlong, Whitty, Whiting, Miles, Barton, & Barrett, 1996). However, often the notion of reflection is presented without the historical roots provided (Fendler, 2003; Zeichner, 1992) in particular, by Dewey and Schön. It is Dewey's ideas from his seminal book, *How We Think*, which are considered next.

### 3.2 Foundational work of Dewey

Dewey is credited with the popularisation of the term reflection through his work related to thinking (Fendler, 2003; Groundwater-Smith, Ewing, Le Cornu, 2003; Hatton & Smith, 1995; Hoffman-Kipp, Artiles, & Lopez-Torres, 2003; Korthagen, 2001; LaBoskey, 1993, 1994; Rodgers, 2002a; Walkington, Christensen, & Kock, 2001, Valli, 1992). Dewey is well known for his criticism of traditional forms of teacher education with their emphasis on the dualism of traditional metaphysics (mind-body; subject-object; being-becoming) and technique isolated from consideration of broader educational purposes. Dewey's responses can be understood by consideration of the educational and historical context of the time. As with all education, the dominant view of the world, knowledge, the nature of human beings and the learning process, shapes beliefs about the role of the teacher.

Three historical events influenced Dewey's criticism: the publication of Darwin's *Theory of Evolution*; the move from people's close relationship with the production process in the typical village such as he had known to industrial production; and the scientific method. Briefly, these influences led to the following commitments. First, he viewed it necessary to develop a student's disposition to act in new situations flexibly and creatively. Second, he viewed learning as problem solving, modelled on the scientific method which he viewed as the highest form of solving problems. His five stage sequence for thinking was part of this model. Third, wherever possible, the knowledge with which a student interacted should be connected to the experiential context within which it arose. Dewey's commitment to equipping children and young people to become participating, constructive members of a democracy included goals of extending the potentialities of the good life to everyone. Consequently, he did not want to make minor adjustments to the educational system of the time but rather, bring about a transformation of the conception and practice of education.

Consequently, for Dewey, the process of reflective thought was one way to bring about this necessary overhaul of education. He presented reflection as a tool to counteract the perceived technicism and dislocation prevalent in school teaching, and teacher preparation, by encouraging teachers to think, build, and use, a clear philosophy of education to guide their teaching. In particular three themes are

considered from Dewey's work: The nature and purpose of reflection, pre-requisite attitudes for reflection, and the importance of contextual factors which enhance reflective thinking.

### 3.2.1 *Nature and purpose of reflection*

Dewey used the metaphor of 'finding one's way' to introduce the purpose of reflective thinking. When someone travelling in an unfamiliar region comes to a fork in the road, they may either "blindly and arbitrarily make a choice, trusting to luck for the outcome, or, discover grounds for the conclusion that a given road is right" (1910/1997, p. 10). The latter approach presupposes a desired outcome, or intended purpose and consequence and, for Dewey, it is this "demand for the solution of a perplexity" which is the "steadying and guiding factor in the entire process of reflection" (1910/1997, p. 11).

Dewey discriminated the quality of thinking in terms of the degree to which one had considered the beliefs and ideas on which the particular thoughts were grounded. This led to what has become one of his most influential ideas (Ovens, 2002) in the realm of teacher education: the distinction between routine and reflective action (1910). Certainly Schön (1983) was inspired by this discrimination and Smyth (1992, p. 268) seems to suggest that it was the propelling idea which has resulted in teacher education "being caught up in a seemingly inexplicable wave of enthusiasm for reflective approaches" (see earlier in 3.1).

For Dewey, *routine thinking* is the type of thinking which we pick up without examination as we go about our daily lives. "Tradition, instruction, imitation" with their dependence on "authority in some form" (Dewey, 1910/1997, p. 1) are responsible for such thought. On the other hand, Dewey described, *reflective thinking* as a cognitive process very closely tied to one's beliefs. Reflective thought involves deliberately seeking "the ground or basis for a belief", and, examining "its adequacy to support the belief" (1910/1997, pp. 1, 2). Such grounds are part of our worldview, or lens through which we process all other thinking. According to Dewey, this process alone is truly educative in value. Reflective thought is viewed by Dewey as a process by which one may challenge prejudices or prejudgements picked up throughout daily living. All human relationships are

complicated by powerful cultural, psychological and political influences, and therefore “teaching can never be innocent” (Brookfield, 1995a, p. 1). Dewey viewed reflective thinking as a way to identify and examine these complexities.

It was Dewey’s wish that teachers would identify the assumptions, or beliefs which provide the basis or *ground* for their thinking, and then evaluate them for their significance:

Reflection thus implies that something is believed in (or disbelieved in), not on its own direct account, but through something else which stands as witness, evidence, proof, voucher, warrant; that is, as *ground of belief*. (Dewey, 1910/1997, p. 8, italics in original)

In the light of the importance of grounded beliefs, attention is now focussed on Dewey’s elements in reflective thinking. Given his commitment to this idea of ‘ground of belief’, it is no surprise that the process of reflective thinking is aimed at these ‘grounds’, especially to ensure they are consciously chosen and justified rather than consisting of hegemonic ideas within the status quo. Dewey defined reflection as:

active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends. (1910/1997, p. 6)

Reflective thinking was to bring order to the “random coursing of things through the mind” (ibid, p. 2) through a recursive and reiterative process that identified relationships between ideas, the beliefs which sustain those ideas, and the consequence of those ideas in practice.

Reflecting his confidence in the scientific method, Dewey presented five ‘logically distinct’ (p. 72) steps in reflection: (i) a felt difficulty; (ii) its location and definition; (iii) suggestion of possible solution; (iv) development by reasoning of the bearings (implications) of the suggestion; and (v) further observation and experiment leading to its acceptance or rejection – that is belief, or disbelief. Much subsequent work with reflection has accepted Dewey’s problematic starting point, that is a felt difficulty or problem, and thus reflection tends to be about problem solving. One might have thought, given his commitment to the notion of curiosity that the starting point may have been any aspect related to being and becoming a teacher about which one was curious. These five steps also embody Dewey’s belief that reflection always involved consequences. In other words, a cognitive

process, or thinking about one's experience, was insufficient. For Dewey, reflection involved double movement: from the confusing or incoherent starting point to a possible solution and then working back from the suggested solution and its implications to the particular facts. In other words, both inductive and deductive reasoning were involved. Dewey (1910) was writing within a logical and scientific framework and therefore it is not surprising that his notion of reflection also is seen as a logical process. Such an approach seems out of kilter with the current notion of reflection which appears to concentrate more on personal experience and craft knowledge, as later identified by Schön (1983). Dewey's approach to reflection and his associated reliance on, and valuing of, the scientific method may be one reason why, in teacher education, reflection has not led to the reform hoped for. Problematic to this approach is the felt need or problem as the starting point for inquiry. The nature of a technocratic approach is that the taken-for-granted nature of the status quo does not present itself as a problem or felt need. But other components of Dewey's approach to reflection need to be considered in order to gain a more complete picture of what he had in mind.

For Dewey, reflection must result in a consequence or solution to the initiating problem, even though such a solution is itself likely to be the focus for change. However, not just any solution was acceptable and the process required knowledge, attitudes and skills with certain characteristics. Reflection also requires of the participant certain pre-requisite attitudes (see next section for more detail). Dewey valued teacher education which sought the development of thoughtful and alert students of education rather than just proficient craftsmen (the male pronoun being the form of expression used in his time). However, this type of thinking presupposed that the thinker develop and sustain certain attitudes.

### *3.2.2 Pre-requisite attitudes for reflective thinking*

For Dewey, reflection involved an integration of pre-requisite skills and attitudes. Each was necessary, but not sufficient for reflective thinking. Both were integral to the process. Dewey identified open-mindedness, whole-heartedness and responsibility as three pre-requisite attitudes for reflective thinking. While the parameters of these attitudes are inviting, space within this review allows only for a brief overview.



By *open-mindedness* Dewey is referring to a willingness to not be stubborn about one's beliefs, ideas and unexamined biases. In fact he suggested a 'child-like attitude' with its sense of curiosity, adaptability and receptivity to new suggestions and ways of thinking and acting. It is the "active desire to listen to more sides than one; to give heed to the facts from whatever source they come; to give full attention to alternative possibilities; and to recognise the possibility of error even in the beliefs that are dearest to us" (1933, p. 30). As Hansen (2001, p. 51) recorded: "It means avoiding a finalized judgment of the world and its people and events". As will be noted later in this chapter, this characteristic is necessary for what Smyth (1992) referred to as 'critical reflection' where being critical requires one to position oneself apart from what is normal, particularly in terms of the way the world is ordered, and ask how such normalcy came to exist. "Teachers who are open-minded are continually examining the rationales that underlie what is taken as natural and right, and take pains to seek out conflicting evidence" (Zeichner & Liston, 1996, p. 10).

*Responsibility*, Dewey's second pre-requisite characteristic of reflective thinkers, refers to a commitment to consider the consequences to which particular actions lead. The person who exhibits this characteristic of responsibility acknowledges the relationship between ideas, words, actions and future outcomes together with a belief that not *any* future is acceptable. They are committed to a future of a particular shape; they have purpose and direction. Such a person is not buffeted about like a rudderless sailboat, but knows her or his way and can (and will) pursue the course (Hansen, 2001). This attitude encapsulates the commitment to living in accordance to what one professes within the concept of being professional (Norsworthy, 2003). It is the integrity of which Palmer (1998) speaks when knowing, believing, being and living are aligned. Zeichner and Liston argue that responsibility has to involve: "reflection about the unexpected outcomes of teaching, because teaching, even under the best conditions, always involves unintended as well as intended outcomes" (1996, p. 11).

Dewey used the common term, *Wholeheartedness* for his third pre-requisite characteristics of reflective thinkers. To be wholehearted, means to give one's heart, body and mind to an endeavour. In common parlance, it is to have the

courage of one's convictions. It requires consistency, continuity and community of purpose and effort. It provides the motivation to move beyond a good idea; to putting that good idea into practice and being prepared to live in accordance with it. Characteristics or dispositions of open-mindedness, wholeheartedness, and responsibility together with a command of the skills of inquiry such as observation, analysis and synthesis were seen by Dewey to be necessary for effective engagement in the reflective process. While paying attention to the characteristics of the person who is reflecting, Dewey also suggested that it was important to address the context in which the reflecting occurred.

### 3.2.3 *Context for reflective thinking*

Where Dewey utilised a journey metaphor as his starting point for the concept of reflection, he used the metaphor of buying and selling to help us understand the nature of the teaching and learning process:

Teaching and learning are correlative or corresponding processes, as much as selling and buying. One might as well say he has sold when no one has bought as to say that he has taught when no one has learned. And in the educational transaction, the initiative lies with the learners even more than in commerce it lies with the buyer. (1910/1997, p. 29)

For Dewey, critical in this transaction is attention to the context in which the experience occurs, and within that context, two key factors: the most important and significant learning or buying factor, *curiosity*, and the most important and significant teaching or selling factor, *the person* who occupies the role. Given these beliefs, his attention to pre-requisite attitudes certainly makes sense, both for the learner and the teacher.

Dewey's approach to consideration of context is based on a different assumption from that which is typically found within the reflection literature. As will be noted within the section about critical reflection, the call to examine and judge the assumptions within the political, social and structural influences on a setting abound. However, Dewey considered context on the basis of his belief that influence was indirect. (see Fenstermacher, 1986, Polyani, 1958). Effective learning would be a meeting of inherent curiosity and a context which supports and encourages learning and specifically the learner's curiosity. According to Manternach (2002) it is important that when referring to Dewey's approach to reflection and reflective teaching one should include his requirement for:

A stance of protracted inquiry and curiosity in the face of a problem. This stance of inquiry is akin to Freire's (1998, 35) notion of 'epistemological curiosity' and his concern for teacher research. A failure to take an inquiring stance may only perpetuate that teacher's role as a 'curriculum delivery service worker'. (p. 278)

For Dewey, "an inert mind waits, as it were, for experiences to be imperiously forced upon it", while the "curious mind is constantly alert and exploring, seeking material for thought, as a vigorous and healthy body is on the *qui vive* for nutriment" (1910/1997, p. 31). Related to this development of an 'inquiry stance', Dewey recognises the importance of creating a context, or space, in which such a stance is fostered and valued. As indicated, one consideration within this space is the teacher or teacher educator herself. Dewey (1910/1997, p. 47) made clear that teachers influence through their being; "everything the teacher does, as well as the manner in which he does it" draws a response from the student and contributes to the development of an attitude. Hansen (2001), drawing on the work of Dewey, noted that 'how' a person is in the world can carry as much weight as 'what' a person is (p. 34).

Consequently, for Dewey the most important thing for a teacher to consider was the attitudes and habits which his or her own modes of being, saying and doing are encouraging or discouraging. It may be that the aspects of a teacher's character, life and attributes which receive little attention in teacher preparation programmes, "are in fact those which have the most influence on students" (Hansen, 1993, p. 398). These two factors (the importance of curiosity and, by association, the need for the educator to create a context or space in which the required learning stance that requires active learning may be fostered and encouraged) together are the motivation for Dewey's call for teachers to attend to the context of their teaching – and thus their reflecting.

In summary, key to Dewey's notion of reflection is the distinction between 'routine' and 'reflective' thinking. For Dewey (1910) the process of reflection is predominantly a cognitive process that identifies and judges the grounds of belief which informs and sustains one's teaching. Effective reflection necessitates the development of three pre-requisite characteristics: open-mindedness, wholeheartedness and responsibility. One who teaches needs to pay particular emphasis to the context of teaching. The context needs to be a place which invites

and encourages curiosity, and attention needs to be given to who the teacher *is* within that context. Consequently, Dewey believed that the focus for teacher education should be on being and becoming a more thoughtful and alert student of education, rather than on the development of teaching competency and proficiency.

As previously indicated, Dewey and others have seen within the process of reflection an antidote to routine thinking and technocratic teaching. The literature relating to reflection shows different emphases over time. Initially Dewey's desire to counteract the perceived technicism in teacher preparation saw reflection viewed as a cognitive process focused on helping the teacher to become a thoughtful and alert student of education who focused on the democratic ideal, rather than concentrating on proficiency or competency in isolation. From the mid-1980s the literature reflects the influence of Schön's writings on reflection, particularly in relationship to professional development. It is to these we now turn.

### **3.3 The contribution of Donald Schön**

There are those (e.g., Munby & Russell, 1989; Smyth, 1992) who would argue that Schön's work confirms the contribution of Dewey rather than adding to it. Just as Dewey differentiated between routine and reflective thinking and the consequential habitual and reflective action, Schön (1983) differentiated between *technical rationality* and *reflection-in-action*. However, while Dewey focused on thinking and education, specifically including school teaching and teacher education, Schön's work in the field of architecture is the source for his contribution to the broader field of professional development. Within the context of this review, two of Schön's interrelated ideas are worth further attention. As previously noted, Schön observed that many professional education courses had not recognised the nature of professional practice, relying on what he termed 'a technical-rational approach' (1983, p. 381). Rejecting the notion of 'well-defined problems', the starting point for Dewey, he argued that a more appropriate model for professional education involved equipping students to become reflective practitioners in order to deal with the multi-faceted problems faced by the professional. Rather than the apparent clarity of a technical rational approach to learning and professional development, Schön believed that professional practice, and therefore development, should recognise and embrace the uncertainty which resides within

the professional endeavour. Schön (1983) and later Claxton (1999, 2002) both emphasised the value of uncertainty as a desirable aspect of reflective practice. Schön's (1983) metaphor of a swampland to represent this uncertainty and muddiness of everyday professional practice where the practitioner and practice meet seems most appropriate.

As it was for Dewey, Schön's view of the world, of knowledge and of learning shaped his view of the teacher's role. Of particular importance to this discussion is Schön's (1987) approach to knowledge and his distinction between formal or propositional knowledge and tacit knowledge, and consequential technical rationality and reflection-in-action. Formal knowledge is viewed as the result of a knowing which is theorised *for* us rather than *by* us and technical rationality results when this type of knowledge is 'applied' in practice. Schön (1983, p. 21) noted:

According to the model of technical rationality.....professional activity consists in instrumental problem solving made rigorous by the application of scientific theory and technique.

Such a view necessitates an acceptance that a correspondence between language and reality can be established and a view of teaching as predictable, uncomplicated and recipe-like – that is, technical. On the other hand, Schön (1987) posited that professionals have tacitly held forms of knowledge which they access when making judgements within the complexities of professional life, and that this knowledge can be brought to a conscious level through the process of reflection. According to Schön (1983), this practical knowledge is *in* the action and may be understood and developed by the process of reflection. Schön presented three approaches to reflection: reflection-in-action, reflection-on-action and reflection-for-action. For some reason much of the related literature refers only to the first two which are both responsive (after the event) rather than anticipatory (before the event). For example, "Schön's idea of 'reflection-in and reflection-on practice' (1983, 1987, 1988) has driven much recent educational research and practice" (Atkinson, 2000, p. 155). In Zeichner and Liston (1990) one reads "by encouraging 'reflection-in-action' and 'reflection on action' (p. 23). One work which does reference 'reflection-for-action' is Yost, Sentner and Forlenza-Bailey (2000) who indicated that reflection-for-action is the desired outcome for the first two types of reflection. They liken it to the notion of teacher as decision maker by stating "Reflection-for-action engages the teacher in reflection to guide future

actions” (p. 40). Integral to Schön’s approach to reflection are the notions of *naming* and *framing*; “we name the things to which we will attend and frame the context in which we will attend them” (1987, p. 40). The process of framing involves description and definition of the context or situation in which the practice occurs. For Schön, these places were to be conceived of as unique and with differing degrees of order placed upon the complexity. Framing was viewed as an art, drawing on the vocabularies of intuition and creativity. The ideas or metaphors used in the descriptive process would not be found in a textbook or manual.

These processes are seen to be integral to the way professionals understand what is going on in practice. Dewey was concerned about knowledge that was unconnected to the context in which it arose. In a similar way, Schön’s view of theory as active resulted in attempts to overcome the notion of knowledge that was the result of disembodied contemplation. Schön (1987) invites us to think of professional practice, not as the implementation of scientifically based, or research produced rules, but rather as an interaction between the person who is the practitioner and the situation in which the practice is to occur. He presented a five stage structured approach for the learning process, including the elements of framing, experiment, situational backtalk, evaluation and reframing. This learning process is circular and may go on infinitely. It appears that both Dewey and Schön share an appreciation for the groundedness of one’s practice. Dewey’s reference point for this was the assumptions or basis for the beliefs identified while for Schön (1983), his evaluation phase invited practitioners to decide if they liked what they saw, “grounded in the practitioner’s appreciative system” (p. 135). Though Schön does not develop this idea and, at first reading, gives the impression of personal preferences and navel gazing, Rømer (2003) has a different reading. He suggests that this could be interpreted as a philosophical rather than psychological category if read within a postmodern lens where taste is considered a non-private entity, drawing on the relationship of the particular taste to fields of public discussions. He noted: “. . . ‘to appreciate’ in this sense would presuppose the ability to move within language games that is particular ways of speaking, which can be validated by a professional public” (p. 90).

While Schön has been influential in the further promotion and development of reflective practice, he did not contribute much about what we should reflect on, or the kinds of criteria that should come into play during the process of reflection (Zeichner & Liston, 1990). In contrast to Dewey's scientific approach, Schön's work celebrates and values what is known within professions as 'craft knowledge'. Some authors (Fendler, 2003; Korthagen & Wubbles, 2001) are critical of such overvaluing of craft knowledge and not giving enough credence to the role and place of the theoretical foundations of teaching. However Schön (1987, p. 7) anticipated such critique:

I believe, that if you find yourself in university, you find yourself in an institution built around an epistemology--**technical rationality**--which construes professional knowledge to consist in the application of science to the adjustment of means to ends, which leaves no room for artistry and no room for the kind of competence . . . that a reflective teacher displays when she responds to the puzzling things that kids say and do in the classroom. [emphasis in original]

While Schön presented a theory of reflective practice, he is criticised for the lack of reflexivity indicated for his own work (Rømer, 2003; Usher et al., 1997). Without critiquing the dominant technical-rational view of education within which his theory sat, it is unlikely that a different reading of that frame would occur. Consequently, as will be noted later in this chapter, the more likely result is that the theory and process of reflection-in-practice becomes a technique within, and ultimately serving, the dominant technical rational paradigm.

### **3.4 Other contributors to the field of reflection**

In the 1980s and early 1990s, the work of Habermas (1973), van Manen (1977) and Mezirow (1991) was influential in the fields of adult education and reflection. As will be demonstrated later in this chapter, the work of these authors has been used to develop taxonomies of reflective thought which typically heralded social critique as the highest form of reflection. Consequently, authors such as Gore and Zeichner (1991), Smyth (1986, 1987, 1988, 1992), Valli (1992), and Zeichner (1986, 1992, with Tabachnick, 1981), turned the emphasis for reflection to political considerations, presenting reflection as the process to bring emancipation from dominant educational and societal ideologies. Particularly influential in this regard was the work of Zeichner and his associates, such as Tabachnick, Liston or Gore, who view critical reflection as a tool which enables teachers to visualise the work

of teaching with an increased emphasis on socio-political contexts of teaching. For example, Hatton and Smith (1995) illustrated this emphasis in their definition of critical reflection as:

making judgements about whether professional activity is equitable, just and respectful of persona or not...[and it] locates any analysis of personal action within wider socio-historical and politico-cultural contexts. (p. 35)

Also from the mid-1980s through to the 1990s, and often drawing upon the work of van Manen (1977), the taxonomies of reflection were seen to shape expectations for teacher education programmes. Martinez (1989) argued that programmes of teacher preparation should attempt to address all three of van Manen's levels of reflection. Some sought to bring the levels of reflection together with perceived stages of teacher development as indicated in the title of Allen's (1997) paper; "Evolution of novice through expert teachers' recall: Its relationship to the frequency and levels of their reflection". Authors began to claim that programmes encouraged all three levels of reflection and to present techniques and tools for this purpose (Appleton, 1996; Campbell, Smith, Boulton-Lewis, Brownlee, Burnett, Carrington, & Purdie, 2001). Yost, Sentner and Forlenza-Bailey indicated how the notion of critical levels of reflection shaped expectations, "Teacher educators must find ways to imbue pre-service teachers with the intellectual and professional experiences necessary to enable them to reflect on critical levels" (2000, p. 39).

An emphasis on reflection and personal, professional transformation has continued and increasing attention has been given to identifying and working with the assumptions which sustain one's beliefs and practice (Dobbins, 1996; Hamilton & Pinnegar, 2000; Huang, 2001; Loughran, 2002; Ross & Weidner, 2002). For example, Dobbins (1996) suggested that pre-service teachers interpreted the theory from on-campus courses in a way "which resulted in them feeling that they were not in a position to take control of their own learning" (p. 60) and that when on practicum they were under pressure to 'do it right'.

With attention on the role of self-awareness and self-efficacy, and the influence of writers such as Claxton (1999, 2002), hooks, (1994), and Palmer (1993, 1998) the literature also increasingly includes reference to the influence of, and importance to engage, other factors such as affective, moral and spiritual dimensions (Eisner,



2002; Ghaye, 2004; Gibbs, 2003; Mayes, 2001b, 2001c, 2002; Manternach, 2002).

Addressing this changing view Eisner (2002, p. 381) wrote that:

Teachers have what some call lived experience (Connolly & Clandinin, 1988). The body is now considered a source of understanding: some things you can understand only through your ability to feel. Knowledge, at least a species of knowledge, has become embodied. It is intimate.

Words and phrases such as van Manen's (1990) 'ontological self-awareness', Palmer's (1998) 'hidden wholeness' or 'undivided life', and Mayes (2001c), 'ontological reflectivity' appear. Such writers recognise that what the teacher or pre-service teacher does, is an expression of their identity and that their identity often finds its purpose and meaning in relation to the way they answer key spiritual or worldview questions such as the ontological question, Who am I? and the teleological question, What is my purpose in life? The importance of this focus is captured by Mayes' comment that, "If our reflectivity is to get at the root of ourselves as teachers, it must first get at the root of ourselves as ourselves" (2001c, p. 478). The emphasis for reflection on understanding self in order to change thinking and consequently behaviour has led to a research methodology called self-study which is discussed in the next chapter.

### **3.5 Summary**

Within this section the work of Dewey and Schön, foundational proponents of the process of reflection, has been presented. More recent work which focuses on the importance of the socio-political context within which teaching and teacher education, occur preceded a brief consideration of the importance of connecting with the person who is, or is becoming the teacher. Given the cementing of the process of reflection as a hope within teacher education to free itself from the grip of technocratic-rationalism, the fourth section of this chapter presents a brief overview of some of the tools and techniques which have been utilised for such a significant role.

## **4. The reflective approach in action**

Once teachers or teacher educators choose reflection as a developmental process, there exists a wide range of ways of *doing* reflection. A wide range of methods, cycles or models exists. These range from step-by-step approaches (e.g., Clayton,

n.d.; Smyth, 1992) through to exploratory story telling (e.g., Mc Drury & Alterio, 2002). Another approach to the reflective process seeks to guide the pre-service teacher through perceived taxonomies of reflective thinking (e.g., Mezirow, 1981). However, other approaches differentiate, not on the basis of a thinking level, but rather on ways of understanding experience (e.g., Virginia –Tech’s narrative, personal and critical reflection). Cooper (n.d.) describes his approach as ‘three levels of reflection’ but, in fact guides reflection through three different foci – captured through the use of the analogies of mirror, microscope and binoculars. For each analogy different questions focus one’s thinking. For example, questions linked to the mirror focus on gaining a clear understanding of self; for the microscope seeks to magnify the small components in order to better understand them, and through binoculars the distant or larger contextual issues are brought closer.

#### **4.1 Tools and techniques**

McDrury and Alterio (2002, p. 19) noted: “Educators from a range of disciplines are embracing a reflective outlook and encouraging students to learn about themselves and their areas of study by engaging in reflective activities”. These ‘reflective activities’ take many shapes and are experienced in a wide range of settings. The choice of tool or technique is seen to be critical, as: “simply being encouraged to reflect is likely to be as meaningful as a lecture on cooperative group work” (Loughran, 2002, p. 33). Numerous mechanisms to promote reflective practice with pre-service teachers have been considered, including the use of critical incidents, autobiographies, metaphor analyses, critical friends, teacher interviews, classroom ethnographies, peer observations, self-assessment, journal writing, portfolios, and action research. Tools and techniques can also be considered in terms of the media in which they are developed. For example, oral tools and techniques include: Socratic discussions (Appleby, 2003), learning talk (Annan, Lai & Robinson, 2003; Usher, Bryant & Johnston, 1997), storytelling (McDrury, 1996; McDrury & Alterio, 2002) and reflective conversations (Hole, 2003; Schön, 1983, 1987). Written tools and techniques include: reflective essays (Connelly & Clandinin, 1990; Gore & Zeichner, 1991, Ross, 1989), writing of a personal educational rationale (Penick, 1999), autobiographies (Brookfield, 1995c; Bullough & Pinnegar, 2001; Smith & Latosi-Sawin, 2000; Walkington et al.,

2001), storytelling (Hole, 2003; LaBoskey & Cline, 2000; McDrury, 1996), portfolios (Frid & Reid, 2000; Johnson, Kaplan & Marsh, 1996; Lyons & Freidus, 2004; Maich, Brown, & Royle, 2000; Mokhtari, Yellin, Bull & Montgomery, 1996; Winsor, Butt & Reeves, 1999), lesson/unit evaluations (Griffiths & Tann, 1992) and the ubiquitous journal (Brunner, 1994; Collier, 1999; Cornford, 2002; Langer, 2002). Recently, the use of mixed media to capture reflection have included: the use of metaphors (Amobi, 2003; Hunt, 2001; Monk, 2005; Perry & Cooper, 2001) and spontaneous drawing (McDrury, 1996; McDrury & Alterio, 2002). Portfolios can also include a range of media such as photographs or artistic works. Also a range of research approaches have been used in the thrust to develop pre-service teachers' reflexivity, including; case studies (Etherington, 2004), action research (Cordingley, 1999; Down & Hogan, 2000; Geelan, Taylor & Day, 1996; Kemmis, 1985; Spilkova, 2001; Zeichner, 1999, 2001) and self-study (Berry, 2004; Hamilton, 2001; Kuzmic, 2002; LaBoskey, 2001; Loughran, 2002).

## **4.2 Importance of critical questioning**

The foundational importance of critical questioning is integrated throughout approaches which focus on encouraging reflective thinking. Haigh (2000, p. 92) positioned the asking of effective questions as central to reflection and noted that:

When such questioning is facilitative, it prompts practitioners to go beyond their first thoughts and taken-for-granted ideas about situations, experiences and their own actions (or inaction), to critically examine underpinning beliefs, assumptions and values, and to generate and evaluate their own solutions to their own problems.

Others who view asking appropriate questions as key to the process of reflective thinking include: Hansen, (2001), Henderson (2001), Long (1995), McDrury and Alterio, (2002), Manternach (2002), Palmer (1998) and, Whitehead (1989). With this agreement that questioning is central to productive reflection it is also noted as important not to reduce such questions to those of technical competence and performance (Haigh, 2000; Mills & Satterthwait, 2000; Walkington et al., 2001). Unfortunately such is often the case. Atypically Day (1999b) suggested that effective reflection is reliant on its regularity and the degree to which it focuses on the "three elements that make up teaching practice: the emotional and intellectual selves of the teacher and students, the conditions that affect classrooms, schools

and students' learning and achievements, the experience of teaching and learning" (p. 216).

Two characteristics which target a technocratic approach to teaching are evident in the literature. The first of these is that of being able to manage uncertainty and to suspend judgement (Arlin, 1999; Atkinson, 2000; Crebbin, 1999; La Boskey, 1993, 1997; Raelin, 2002; Wasserman, 1999). The second characteristic involves the ability to consider an issue from a multiplicity of perspectives (Brown & McCartney, 1995; Ferry & Corrent-Agnostinho, 2001; La Boskey, 2001) rather than be beholden to a binary approach to thinking. As indicated previously, a binary approach to thinking is linked to a search for certainty and simplicity; neither of which embrace the complexity of the teaching-learning process. Freed from a reliance on the 'one best answer', a reflective thinker becomes an interpreter of interpreters (Manternach, 2002; Norsworthy, 2003; Sankey, 2001). Manternach made this point when he wrote:

As interpreters, teachers must have an ability to discern, acknowledge and engage important questions for themselves as well as with others. This interchange of active ongoing interpretation between teachers and learners must consciously foreground how the context of our learning shapes the questions we find ourselves asking or not asking. (2002, p. 274)

Postman (1997) claimed that what we learn and know about an area of knowledge is dependent on the questions we ask about it. The ability to be involved in critical analysis through the questions we ask is a resulting, and necessary, characteristic of reflective thinkers. (McDrury & Alterio, 2002; Sandretto, Lang, Schön, & White, 2003; Wideen, Mayer-Smith, & Moon, 1998).

This section includes a brief overview of reflection-in-action by outlining possible tools, techniques and characteristics of the reflective approach. It is noted that, within teacher education, these are typically focused on during the practicum experience. The process of reflection is presented as a hope to counteract the tendency toward a technocratic view of teaching where certainty and simplicity are assumed. However, the hope placed in reflection has not been rewarded and the next section considers a range of reasons why this may be so.

## **5. Reasons reflection has not been as influential as hoped for**

Earlier in this chapter consideration was given to the foundational ideas about reflection and the necessary prerequisite dispositions indicated by Dewey. One may ask if they have been influential in teacher education, and if they have, “What has been the outcome of such an influence? Unfortunately, the literature indicates that the plethora of approaches to reflection has made little difference to teacher education or teaching (e.g., Bates, 2002; Bean & Stevens, 2002; Calderhead & Gates, 1993; Clarke, 1994; Fendler, 2003; McDrury & Alterio, 2002; Moon, 1999; Risko, Vukelich, & Roskos, 2002). For example, Cornford made clear that:

There is no empirical evidence that clearly establishes that reflective teaching approaches have resulted in superior teaching or learning about teaching for beginning teachers. There is still great confusion concerning the concept, with there being good reason to believe that it is too all-embracing and wide-ranging to assist in researching and developing effective teacher education practices. (2002, p. 231)

It is intriguing that the notion of reflection gained credence as a shaping principle for teacher education programmes before there was any empirical evidence of its efficacy. Even though “we know little about what students actually do when asked to reflect on their own learning and whether reflective practice has any impact on enhanced teaching abilities and decision making” (Risko, Vukelich & Roskos 1999, p. 134), the reflective model of teacher education has gained universal acceptance. According to Cornford (2002) possible reasons for this emanate from attempts to gain professional credibility including a desire to integrate practice and theory.

Dewey’s belief that reflection must result in change is shared by a range of authors (Arlin, 1999; Atkins & Murphy, 1993; Cranton, 1996; McDrury & Alterio, 2002). Therefore, one might expect that if the prevalent notion of reflection included a commitment to change, improvement or transformation, and the process of reflection was as commonly enacted as it is ubiquitously upheld in the teacher education literature, then the expectation that change would also be prevalent would not be unreasonable. The question must then be asked of the literature – why is the expected change not present?

Loughran suggests that the cynic may argue that the only consequence of the resultant “large-scale uptake of reflection as a shaping principle for teacher education”

programmes is that “participants are simply encouraged to reflect” (2002, p. 33). Similarly, Bean and Stevens (2002) concluded their research noting that relatively few studies have explored the nature and role of reflection, tending instead to focus on the effect of a ‘reflective technique’ such as journaling. Some teacher educators have questioned the value and viability of ‘teaching’ reflective skills within the traditional pre-service educational context (Calderhead & Gates, 1993; Hatton & Smith, 1995; LaBoskey, 1994). In contrast, Cole (1997) would argue that we have given maximum attention to exploring the concept of reflection, but “overall we have not helped teachers *be* reflective practitioners” (p. 21). Roskos, Vukelich and Risko (2001, p. 598) concluded that pre-service teachers “eagerly describe, report and query some but they do not interpret, evaluate or critique teaching activity in ways that deepen their understandings of the contextual and socio-political dimensions of teaching practice”. These same authors note in a later article that reflection was not seen to improve with practice but rather led to routinization of the practice, with little movement to higher order thinking: “our students reflected largely at the factual and technical levels” (Risko, et al., 2002, p. 135). (see also: Furlong, Barton, Miles, Whiting & Whitty, 2000; Sparks-Langer, 1992; Zeichner & Liston, 1996).

The literature identifies a range of constraints on being reflective, including: time, view of reflection as interruption to real teaching, doubts as to its value, no desire to reflect, lack of appreciation of benefits of reflection, no models, environmental factors such as institutional structure, expectations, dominant ideology, psychological states, no shared language, lack of skill, and over emphasis on writing skills. For the purpose of this section of the literature review, constraints are identified related to conceptualisation, approaches, theory-practice dichotomy and contextual influences. These are now considered.

### **5.1 Conceptual barriers**

The way in which reflection is conceptualised is of utmost importance to its influence. Within this section, attention is given to views of the nature and purpose of reflection, the lack of clarity in its conceptualisation and, finally, a range of approaches to reflection.

*The nature and purpose of reflection*

While much of the related teacher education literature refers to Dewey when explaining why reflection is such an important component of professional behaviour, minimal reference is made to components of Dewey's writing which he identified as key or important. The consequence of this is the development of a wide range of approaches to reflection, across a wide spectrum of epistemologies (Cole, 1997; Fendler, 2003; Ovens, 2002). In fact, even within one epistemological tradition authors draw on Dewey for different purposes – as indicated by Fendler (2003) with her examples of how cultural feminists Richert (1992) and Noddings (1996) draw on Dewey to support differing views of the relationship between reflection and socialisation. For example, Richert draws on Dewey's belief that those who know reflectively, rather than routinely can be intentional in their actions. From this she further develops notion of empowerment and agency and reflection becomes "a way of getting in touch with one's authentic inner self in order to think in ways that have not been influenced by the same theoretical tools that built the master's house" (Fendler, 2003, p. 20). On the other hand, Noddings writes of her affinity with Dewey's view of education as socialization where both the *ideals* and the development of *habits* of inquiry and reflection are shared values by the teacher and the taught. On the one hand, Richert is seeking freedom from the dominant paradigm for educational practice, and Noddings, is seeking harmony between societal values and educational practice.

*Lack of clarity in its conceptualisation*

Since Dewey's popularisation of the term reflection emerged as a way of counteracting the perceived technicism in teacher training, it has meant different things to different people (Brown & McCartney, 1995; Calderhead, 1989; Cole, 1997; Day, 1999b; Gilbert, 1994; Grimmer & Erickson, 1988; Hatton & Smith, 1995) and "suffered from oversimplification" (Edwards & Collison, 1996, p. 50) resulting in a term which has very little meaning (Cole, 1997; Zeichner, 1992).

Reflection has been described as:

- a natural impulse (Cole, 1997; Brunner, 1994);
- a range of types of thinking such as reasoning or mental processing (Korthagen, 2001; Ong, 2004),
- a hermeneutic or interpretive process (Sankey, 2001; Wright, 2000),

- inquiry (Rodgers, 2002b),
- a problem solving process (Risko et al., 2002),
- a mode of research (Clegg, 2000; White, 2002),
- meditation (Brown & McCartney, 1995),
- the heart of teaching (Hole & McEntee, 1999, Hole, 2003),
- *the* recipe for self-improvement (Zepke, Nugent & Leach, 2003)
- an ethical tool to take control of one's life (Gelter, 2003) and,
- the 'preferred interpretation of teaching' (Carson, 1997)

While defining what actually constitutes reflective practice is not viewed as an easy task, many have attempted the task and in doing so identify the focus of reflective practice in a variety of ways. These include reflections on: pedagogical relationships (van Manen, 1991), social responsibility (Zeichner & Liston, 1987) and the moral and ethical dimensions of teaching (Tom, 1984).

This may in fact be one reason why the notion of reflection and critical reflection in particular is so popular. The lack of clarity with conceptualisation means that teacher educators from a wide range of ideological stances can claim to prepare beginning teachers who are reflective - all saying the same thing, but perhaps meaning something quite different. This has led to what Smyth (1992, p. 286) described as:

a kind of conceptual colonization in which terms like reflection have become such an integral part of the educational jargon that not to be using them is to run the real risk of being out of educational fashion. Everybody climbs aboard under the flag of convenience and the term is used to describe anything at all that goes on in teaching. What is not revealed is the theoretical, political, and epistemological baggage people bring with them.

Gilbert (1994) agrees with Smyth in terms of the need to reveal the theoretical and contextual factors which underpin a particular approach to reflection. However, she bemoans the fact that the one term, reflection, can be used from such a range of perspectives. For Gilbert this indicates that the notion of reflection has been kidnapped for reasons and purposes other than those originally intended. She argued that the concept of reflection originated in 'critical', 'liberatory' discourses of education but is typically utilised within a technicist view of education with teachers as consumers or implementers of research and development. Gilbert defined a 'liberatory' discourse as one "in which the integrity and professional



commitment of teachers are considered to form the basis of good educational practice' and in which the main goal of education is seen as being the development of a range of human capabilities" (p. 516). To support her argument, Gilbert identified Dewey's distinction between 'routine' and 'reflective' action as shared by authors such as Zeichner, Schön and Cruickshank, together with his belief that teacher education should concentrate on helping the teacher to become a thoughtful and alert student of education. Gilbert also noted the danger of designing teacher education courses on a notion such as reflection without appropriate consideration of the commitments inherent in the philosophical approach which underpins its theoretical basis. Of particular interest to Gilbert are both Dewey and Schön's desire to eliminate dualisms such as means and ends, theory and practice, knowing and doing, and, research and action: dualisms which the process of reflection is seen to re-unite.

## **5.2 Approaches to reflection**

As already indicated, the notions of reflection, reflective practice and reflective practitioner are integrated throughout the teacher education literature. However, this ubiquitous call to prepare teachers as 'reflective', or 'reflective practitioners' is seen to mask a wide range of approaches by the use of the common rhetoric (Gilbert, 1994; Zeichner & Liston, 1990). The literature includes repeated references to reflection within the parameters of a taxonomy where levels are viewed as discrete and hierarchical. The most often referred to are those presented by van Manen (1977) or Mezirow (1981), both of whom share the work of Habermas (1976) as foundational. van Manen applied Habermas's ideas to the area of professional practice and pedagogy and presented three 'levels of reflection': technical, practical and critical. Mezirow applied Habermas's ideas to action research and the area of adult education and presented three 'levels of reflection' which are named after the focus of reflection.

Habermas (1976) presented his three kinds of knowledge (instrumental, practical and emancipatory) as learning domains, grounded in different aspects of social existence, with particular ways of generating knowledge. A summary of these is presented in Table 1.

<b>Human interest</b>	<b>Kind of knowledge</b>	<b>Key question</b>	<b>Generating approach (i.e., research)</b>
Technical what works	Instrumental	What works?	Positivistic, empirical-analytical
Interpretation and understanding	Practical	How do I make meaning of this? How do I understand this?	Interpretive, hermeneutic
Criticism and liberation	Emancipation	What influence have societal, historical and contextual factors had?	Critical theory

**Table 1: Habermas' kinds of knowledge**

Mezirow and van Manen separately built taxonomies on the basis of Habermas' work as demonstrated in the figure below. To help bring clarity a key focus question is provided in my summary below in Table 2.

<b>Habermas</b>	<b>Work</b>	<b>Practical</b>	<b>Emancipatory</b>
Mezirow	<b>Content</b> Focus: What happened in terms of the usual way of working with problems or dilemmas (i.e., the content of problems).	<b>Process</b> Focus: How did this happen and was it effective? (i.e., the processes of thinking, feeling and acting).	<b>Premise</b> Focus: Why did it happen? (i.e., the assumptions underpinning the action).
van Manen	<b>Technical</b> Focus: How did I use this technique?	<b>Practical</b> Focus: How do my values drive the way I interpret action?	<b>Critical</b> Focus: What are the moral and social implications of my classroom practice?

**Table 2: Mezirow and van Manen - Building on Habermas**

Describing the approaches Mezirow (1981) and van Manen (1977) present in terms of a taxonomy, or hierarchy, has the unfortunate ramification of suggesting that each word represents a distinctive domain and that one approach is of more value than another. Other taxonomies are presented by authors including: Collier (1999), Pultorak (1993), Yost, Sentner, and Forlenza-Bailey (2000).

Consequently, in an attempt to overcome the known expectations typically related to levels and stages and the movement from one stage to another, a different and unique approach is used to organise approaches to and of reflection. Within the literature, two very broad categories of approaches to reflection have been identified, based on the nature of the beliefs and approach to teaching which are

foundational to the focus for reflective thinking. The category descriptors are chosen particularly for their ability to signal the degree to which each interacts with the status quo. In recognition of a belief that the majority of teachers and teacher educators would describe themselves as intentional in their endeavours, these two broad categories are labelled as: intentional-technical and intentional-liberational.

#### *Intentional-technical approach*

Within the first grouping reflection is typically viewed as a cognitive process that arises out of a felt need and is shaped around an open question about pedagogy or student learning. Of key importance in this view of reflection is the relationship between practice and goal or aim. Questions to be considered focus on what works (in particular with reference to classroom behaviour and technique) and could be retrospective, seeking understanding of past behaviour, or anticipatory seeking to achieve a certain behavioural outcome. For example, in asking a question such as, “How did I, or how will I, handle disruptive behaviour?” the assumption would be that there is a ‘right’ way to handle disruptive behaviour, a way of matching formal theory and practice. Usually, though not always, the approach is reliant on a traditional and positivist view of knowledge. Reflection is seen as a tool to evaluate the degree to which formal theory is resident in, or has been applied to, practice. The role of reflection typically provides the processing link between research findings or new information and integrating it with one’s existing understanding (Ong, 2004). For this reason approaches to reflection which fit this description tend to focus on an intentional application of technique and therefore are categorised by for the purposes of this thesis as ‘intentional-technical’.

Within this category there are those who, typically follow the writings of Schön (1983) and view reflection as an everyday process which focuses on identifying ‘professional knowledge’ which is believed to be largely unarticulated and *intuitive*. Teachers who base their approach on Schön’s work endeavour to make this intuitive knowledge explicit. Of key importance in this broad grouping is the degree to which there is a match between one’s actions and espoused theory or framing of a situation (Atkinson & Claxton, 2000). For example, in asking the same question as above, “How did I, or how will I, handle disruptive behaviour?” the reflective process will enable the teacher to first describe the action and then

identify the theory or professional knowledge embedded in that action. It is because of this adherence to Schön's notion of attending to action or practice and the degree to which what occurred matches intentions that the term intentional-technical appears appropriate.

*Intentional-liberational approach*

The second broad category apparent within the literature values the process of reflection for its ability to critically consider practice and its moral dimensions, and as a consequence strengthen the likelihood of liberation, emancipation and change. Zeichner (1993) and others have argued for a framework that encourages teachers "to conceive of their work in broader terms that incorporate socio-political contexts of teaching in addition to curricular and pedagogical concerns" (Hoffman-Kipp, Artiles, & Lopez-Torres, 2003, p. 2). Of key importance in this broad grouping is the match between actions and moral and ethical principles. In asking the same question as previously, "How did I, or how will I, handle disruptive behaviour?" both the norms and values governing my choice of strategy would be identified, along with their source. Within this category, educators seeking an answer to the question are typically concerned with notions of equity, justice and freedom from oppressive and constraining thoughts, structures or policies. The process of reflection within this grouping is viewed as 'a way to unmask domination' (Brookfield, 1995c; Cranton, 1996, 1998; Gore, 1987, Hatton & Smith, 1995; Valli, 1992; Zeichner, 1993; Zeichner & Liston, 1987). For example, Cranton captured some of the key characteristics of this approach:

If educators are to develop their practice, a process including both personal and professional growth, then critical reflection on practice will be central to the learning. This is not to say that instrumental and communicative learning about teaching are not a part of becoming an educator, but rather that *development* requires moving beyond the acquisition of new knowledge and understanding, into questioning our existing assumptions, values and perspectives. (1996, p. 76)

The freedom from such assumptions comes after identification. Cranton contributed further to this discussion by noting that:

When we understand what we believe and its roots (whether those be in our childhood, our past experiences, our culture, our language or the media), then we become free to choose whether or not we want to maintain that belief. Without knowing the source of our assumptions, it is difficult to feel free to question them. (1996, p. 85)

Such an approach no longer looks to apply theory to practice, nor even be limited to improving techniques, but rather, is viewed as “a way of understanding why we do what we do and changing our practice if it has been based on invalid or constraining habits” (Cranton, 1996, p. 95). Such desired intentional liberation might be from the established unhelpful beliefs students may bring to their teacher education programmes (as noted earlier in this chapter). Such an approach can be seen to include elements from Dewey’s ‘ground of belief’ (1910/1997, p. 8), Brookfield’s (1995a) ‘assumption hunting’ and ‘critical reflection’ as outlined in Mezirow’s (1991) transformation theory of adult learning. It leads to asking such questions as: “From where do my ideas originate?”, “How did I come to believe what I do?”, “Can I sustain and defend those beliefs?”, “Do they hinder or impede my understanding of myself as teacher?” (Groundwater-Smith, et al., 2003, p. 19). This process appears to have the capacity to lead to the freedom which comes from critical reflection’s attention to the assumptions underpinning the current status quo, together with a sense of self-awareness so that actions are not merely impulsive or routine but rather can be reflective and intentional. Risko, et al. (2002) believe that reflection has the potential to engage students in a critique of their beliefs and practices, and Cranton noted: “development requires a moving beyond the acquisition of new knowledge and understanding into questioning of existing assumptions, values and perspectives (1996, p. 76). As Zeichner and Tabachnick, using Dewey’s words, see it, “It enables us to know what we are about when we act” (1981, p. 8). Groome (1980, p. 186) captured it this way:

The reason we attend to the present and the past is that we may intend the future. But intending the future requires imagination; otherwise the future will be little more than repetition of the past. The imagination I am describing here cannot be idle wonderment about the future. Rather, it must be a creative and shaping activity that gives intentionality to the future as it arises out of the present and the past. Imagination involves a refusal to duplicate what is given or to take the shape of the future as inevitable.

In keeping with Dewey’s “we cannot undo the past, we can affect the future” (1932, p. 351), and LaBoskey’s (1993, p. 35) “reflection has a future orientation” but recognising the contribution that understanding the past and the present contributes to that future, writers within this category are definitely focused on future change, and usually this includes change which challenges the current state of affairs. The emphasis on gaining freedom from the power of an unexamined status quo whether that be structures, ideology or habitual thinking and practices,

while working toward an inspirational and motivating ideal such as social justice, means that it is appropriate that this grouping be categorised for the purposes of this thesis as ‘intentional-liberational’.

As well as broad approaches such as intentional-rational and intentional-liberational, which indicate alignment with such notions such as status quo, social justice and emancipation, the literature reflects a belief that the process of reflection itself can be thought of in terms of a hierarchical taxonomy. For many teacher educators the different levels of reflection within such a hierarchy have been the focus for pre-service teacher development. As previously indicated, the ways taxonomies are used in teacher education assume a false dichotomy (Fendler, 2003) that sets the technical against the liberational or critical. Some teacher educators have latched on to these hierarchies as means to evaluate pre-service teachers’ level of reflection; sometimes in direct contrast to the beliefs that birthed the concept in the first place. It is not uncommon for student teachers to receive feedback on their journal or reflective writing in terms of the level of reflective thinking (Bain, Millis, Ballantyne & Packer, 2002; Power, Clark & Hine, 2002). In such an approach, it is most likely that students’ attention is focused on how to write a particular genre (Hatton & Smith, 1995), or on achievement of a level, fulfilment of a task, or, meeting a standard, rather than the thoughtful consideration envisaged by Dewey. Alternatively, La Boskey (1994) posited that when reflection focuses on answering the why question, students’ foci will be drawn across these categories and levels of reflection such as those presented by van Manen (1977) and Mezirow (1991) become irrelevant and may create what “Shulman (1988) objects to as a false dichotomy (or in this sense , tri-chotomy)” (p. 35).

*So – what’s the problem with approaches to reflection?*

The observation is made that the baggage that comes with the term may be more of a hindrance than help (Hawkey, 1995; McMahon, 1997; Zeichner & Liston, 1990) and perhaps a new approach and new descriptor would be beneficial.

But too often, the calls to get teachers to engage in reflection and to study their practice are only empty slogans and boil down to nothing more than a plea that they ‘think hard’ about what they are doing and why they are doing it. (Bullough & Gitlin, 1995, p. 15)

One might ask what use is a practice; say ZINGING, if it is described as something aimed at facilitating ZINGING teachers? The equivalent of this circular argument is found in the research literature when a so called reflective practice such as journaling assumes reflection while also claiming to contribute to its development. The end result of a practice which exists for the practice by itself does not have much to offer those who wish to be intentional and critical in their endeavours. As recently as 2002, Risko, Vukelich and Roskos noted that we still do not know what it is that students do when they are involved in reflecting. Nor do we know if, or how, reflective practice influences teaching and its inherent decision-making, or most importantly, children's learning. Some (Gilbert, 1994, Smyth, 1992) argue that reflection is presented from a skills-based mindset and has, in fact, become an integral part of a technicist competency-based approach to teaching: the very perspective of teaching it should challenge and address. Analysis of the literature would support this suggestion. The process of reflection meant to bring liberation from unexamined influences of context, situation or ideology, appears itself to be captured by a technical-rational ideology which maintains rather than challenges the status quo.

John Smyth (1992) argued that "reflective teaching is entering a phase, like many other educational ideas and reforms, where it has been co-opted and institutionalised" (p. 275). Like most educational reforms before it, it is being cast in the mould of the technological mindset and thus supports rather than challenges standard practice. In such a situation, reflection "becomes a means of focusing upon ends determined by others, not an active process of contesting, debating, and determining the nature of those ends" (Smyth, 1992, p. 280). Certainly, Nuthall (2001) would argue that the reflective model of teacher education and professional development is one of the contributing factors which sustain the myths and rituals of standard models of teaching because it assumes the "reflective teacher has valid information about what is happening in her or his classroom. . ." (p. 26).

However, even when "reflective practices seem to be technical and instrumental, they may still embody a profound sense of moral and political commitment to improving society" (Fendler, 2003, p. 21). Conversely, given Dewey's intention that reflection would liberate one from technical or instrumental ways of thinking,

it seems ironic that some teacher educators declare commitment to social justice and liberation and yet seek to achieve this through a 'reflective' process that is essentially a technicist, step-by-step approach (Brunner, 1994). The work of Korthagen (2001), and particularly his ALACT model, has been influential in teacher education. Korthagen presented the five actions, "action, looking back, awareness of essential aspects, creating alternative methods of action, and trial" (2001, p. 62), not as cycles but as phases that make up one cycle of professional development. However, Fendler (2003) is critical of Korthagen's ALACT model commenting that "the research leading to the ALACT model and the research deriving from it construe reflection as a step-by step process" and as a consequence reflective thinking becomes "formalized in instrumental terms" (p. 18). Korthagen's definition for reflection as "the mental process of trying to structure or restructure an experience, a problem, or existing knowledge or insights" can be seen to mirror Schön's (1983) notion of 'reframing' but from a cognitive psychological, rather than artistic or 'swampy lands' approach. Later in his book in the process of outlining the ALACT model, Korthagen noted the importance of needing "more holistic techniques for the promotion of reflection" in order to stimulate "the surfacing of the less rational sources of teacher behaviour" (p. 229). It is true that Korthagen promotes systematic reflection but it is aimed at the development of professional theory building rather than the narrow 'instrumental ways of thinking' which Fendler (2003, p. 18) attributes to it. It appears important to discriminate between Vygotskian type scaffolding of learning and technicist recipe building approaches. For Korthagen, as with some other teacher educators who highlight the importance of reflection, the goal is the integration of theory and practice, and reflection is seen as key to attaining this goal. The challenges associated with approaching theory and practice as two distinct realms of activity have already been signalled and are re-visited later in this chapter. The point to be made at this time is that generally the promise of change, emancipation and informed teaching tends not to have materialised either for the student teacher, teacher or teacher educator (Hatton & Smith, 1995). In fact, according to Fendler (2003), "One direction of critique is that reflective practices have not helped advance teachers' roles in schools" (p. 16), while at the same time "practices of reflection have consequences that tend to thwart reform" (p. 17).



Analysis of the literature supports a conclusion that the notion of reflection does not appear to be helpful in explaining the difference in development of individual students, nor in influencing the apparent minimal engagement student teachers have with key component beliefs about ‘good teaching’ that underpin their teacher education courses. As Sumsion observed:

My point here is that the extensive reporting of superficially successful accounts of facilitating reflection might lead to a false sense of satisfaction about the impact of programmes that I aim to foster reflection. I wonder, too, whether we might be in danger of allowing our personal and philosophical commitment to reflection as a foundation for professional preparation - and our enthusiasm to lay to rest the technical-rationalist perceptions of professional practice underlying previous incarnations of our programmes - to blind us to the practical and pedagogical difficulties of fostering reflective practice. (2000 p. 210)

The process of reflection was embraced by teacher educators as a hopeful response to addressing the techno-rational dominance within teacher education, but this does not seem to have been achieved.

Each way of viewing reflection and its related approach to teacher education reflects a particular stance toward the well established theory/practice binary. As has previously been indicated, reflection was heralded as the process which would finally enable ‘real’ integration of theory and practice or at least make the links between these (Brady, Seal, Bamford & Deer, 1998; Galvez-Martin, 2003; Korthagen, 2001). Typically the process of reflection is tied to the practical teaching component when student teachers ‘reflect’ on their teaching experience. What do not appear to be explored within the literature in any detail are the problems which arise when the relationship between person, theory, practice and experience is viewed from a scientific or positivist paradigm.

### **5.3 Reflection and the theory/practice dichotomy**

Dewey (1910/1997) wrote of the dangers of isolating abstract or logical thinking from its related practice:

Teacher and student alike tend to set up a chasm between logical thought as something abstract and remote, and the specific and concrete demands of everyday events. The abstract tends to become so aloof, so far away from application, as to be cut loose from practical and moral bearing. (p. 51)

And, where the emphasis is on the practical, the ‘acquisition of skill’, Dewey (1910/1997) identified the well known tendency for student teachers to “take the shortest cuts possible to gain the required end” (p. 51), rather than choosing to be thoughtful and considerate in terms of the desired, rather than required, end. As Stansbury and Zimmerman (2000, p. 5) reminded us, student teachers may profit in the short term from solving particular practical problems but long term they profit by “knowing how to think constructively about any problem that comes up in their teaching”. Such an end result will not be accomplished by a theory applied to practice approach to teacher education. Also, the assumption appears that if a student teacher is given the research-based theory and a repertoire of teaching skills and strategies, together with a model template or approach to reflection, they will be a reflective practitioner. However, we are aware that knowing what to do, and being able to do it, is necessary but not sufficient to ensure that teachers are intentional in their actions (Gibbs, 2003).

The associated problem with theory and practice arises when we objectify something. Such a practice is seen, and in fact requires us, to stand apart and assert mental control without any sense of obligation to it (Greene, 1987). Hiebert, Gallimore and Stigler (2002) frame the theory-practice chasm as the divide between professional knowledge and practitioner knowledge. Practitioner knowledge is linked to practice and is “detailed, concrete, specific and integrated” (p. 24). But this division positions professional knowledge as objective and isolated, ignoring the very personal commitment which, as has already been noted, lies at the heart of the notion of profession. Hiebert, et al., suggest that the disconnection between theory and practice formed because “beginning teachers were not provided with adequate support for thinking about their practice and how theory is an interpretation of their experience” (p. 25).

In an attempt to overcome the traditional dichotomy, eroding the separation of process and propositional knowledge where off-campus or field learning and on-campus learning is segmented, Cherednichenko and Kruger (2002) contended that learning is not the product of a practice to theory, or theory to practice nexus. Rather they see that learning occurs through exploring and understanding practice claiming, “these dialectics are dissolved through a dialogue of inquiry” (p. 5). If,

as Palmer (1998) suggested, teacher educators embrace the theory and practice paradox, as two sides of a coin, then, the two sides can only be integrated and joined together if they are equally valued. Even this suggestion continues to be challenging and problematic for initial teacher education in terms of its contexts.

Within the literature, an alternative approach which may solve this theory to practice dichotomy and dilemma is to shift the student teacher's focus from direct attention to either theory, or practice. For example, Cherednichenko and Kruger suggested that an alternative approach is to shift the focus to the learning needs of the students where "traditional separation (Eraut, 1994) of propositional knowledge and process knowledge dissolves as clearly defined zones of action and thinking are not distinguishable or appropriate" (2002, p. 2). These ideas reverberate in Eisner's 2002 article in which he addressed the need to move the initial teacher education focus from *episteme* (formal theory) or *phronesis* (practical knowledge) on into *artistry*. He claimed:

Teachers, for example, are not regarded now as those who implement the prescriptions of others but as those most intimate with life in classrooms..... Teachers are collaborators in knowledge construction and bring to the table of deliberation a kind of insider knowledge. . . Teachers have what some call lived experience (Connolly & Clandinin, 1998). The body is now considered a source of knowledge; at least a species of knowledge has become embodied. It is intimate. To know has taken on a biblical meaning. (2002, p. 381)

However, viewed from a Biblical epistemological perspective, theory and practice can never be separated. Theory must be done, that is, practiced to be known. The known and the knower are inextricably intertwined and related. The knowledge and actions within teaching are both expressions of self (Bullough, Clark & Patterson, 2003).

The notion of knowledge residing in practice, a concept made popular by the writings of Polanyi (1958) has acceptance within the teacher education field in part due to it being a critical foundational belief in Donald Schön's (1983) work on reflection for professional practitioners. Schön's notion of reflective practice provided one way to access what Polanyi (1958) termed 'tacit knowledge'; that is what practitioners know and do intuitively but cannot articulate easily. Another helpful distinction is provided by Argyris and Schön (1974) who found the process of reflection helpful in order to reveal discrepancies between 'espoused theories',

what practitioners think is happening and why, and ‘theories in use’, what is actually occurring in practice.

Working in the field of literacy education, Bean and Stevens (2002) undertook a study which explored the use of scaffolded reflection where both pre-service and in-service teachers’ online and written reflections were analysed for “reflections of and challenges to various education-oriented discourses” (p. 205). Findings from their study indicated 113 out of 170 message units within reflections referred to the scaffolding provided by the instructor. This might indicate two things: the power of scaffolding to focus students’ attention, and the continued power of ‘giving the lecturer what they want’. Interestingly, results indicated that while the scaffolding helped the students to formulate and articulate their personal belief system” (p. 205), students’ referenced existing ideologies and discourses but did not challenge them. In the case of the pre-service teachers, it was also unlikely that classrooms or schools would be referred to as contexts within which their teaching occurred. One suggestion made by Bean and Stevens (2002, p. 215) is that “the almost complete lack of reference to the practicum classrooms shows that these students are not contemplating instructional issues at an application level, hence they often rely on generalised statements and platitudes to summarize their thinking.” Put another way, this may indicate a continuation of the theory/practice binary with which the students have had extensive experience. In terms of Dewey’s foundational work the pre-service teachers’ thinking does not illustrate the attitude of open mindedness or wholeheartedness. Also, the notion of ‘framing’ as suggested by Schön (1983) as a critical component of the reflective process is not evident.

Gordinier, Moberly and Conway (2004, p. 146) reported that they utilise the use of scaffolding as a technique to help student teachers “think effectively about their own performance, encouraging them to respond to prompts of their own teaching in view of what specific characteristics and concepts represent effective teaching practices”. However, the prompts used in their work with pre-service teachers’ teaching are aimed at the rational-technicist questions of “What works?” and, “What works well?” Such an approach assumes the theory/practice binary which is

an integral part of the rational-technical paradigm within which so much teacher education is positioned.

#### **5.4 Summary**

This section of the literature review reported on how barriers to effective reflection and liberation from the technical-rational paradigm are influenced by the conceptualisation of reflection which in turn, influences a teacher educator's approach to reflection and how pre-service teachers treat notions of theory and practice. Another barrier to the hopeful release from a technical-rational paradigm can be found in the ways teacher educators and institutions conserve the status quo. In the next section of this literature review the focus will be on such processes.

#### **5.5 Reflection and pre-service teachers initial learning lens**

The fact that student teachers' expectations of their pre-service programmes are strongly influenced by their prior experiences as learners is clearly established within the literature. As a consequence of years of uncritical observations of their own teachers at work student teachers commonly enter their teacher education with a view of teaching as simple and transmissive (Berry, 2004; Britzman, 2003; Pajares, 1992). They believe that teaching involves the uncomplicated act of telling students what to learn and therefore tend to want the same for themselves. They "want directions not ideas to think with" (Brunner, 1994, p. 49). As was indicated in the previous section, pre-service teachers seek certainty rather than consistency and are looking to find out 'what works'. Consequently teacher educators, working from a technical-rational paradigm may view reflection as a tool to discover such information. However, as Bullough and Gitlin pointed out "many things work, but not everything that 'works' is morally, socially or educationally defensible" (1995, p. 17). If reflective practice is to "enlighten, develop and improve professional practice" (Osterman & Kottkamp, 1993, p. 185) the focus cannot begin with pragmatic procedures.

When reflection and the reflective process flow out from teaching experiences, theory may be limited to personal or espoused theories within that practice. Whether articulated or not, student teachers hope that their "teacher education

program will supply them with a comprehensive set of practical teaching strategies to ensure their success in the classroom” (Berry, 2004, p. 1302). When this does not occur, or does not occur in a shape or form they recognise, students tend to be critical of their preparation (Berry, 2004; Britzman, 2003). At the beginning of their course students are keen to learn about how to teach, and too often ignore deep-seated beliefs. These deep-seated beliefs are inextricably connected to their identities and “profoundly influence the way they receive knowledge”. For example, at the beginning of their teacher preparation, pre-service teachers appear to view learning as task completion, or the amassing of notes to refer to later. Teaching then becomes the giving of tasks for completion. Such a view may be the result of our current education system, but the fact that it is often unexamined is problematic (Cranton, 1996).

The process of reflection itself can be neutralised if those within the teacher education activity remain caught in their own taken-for-granted assumptions. It is argued that reflection by its very nature and definition requires something outside the experience against which to reflect and critique the experience. Personal histories, local experiences and contextual understandings together with insight from the educational disciplines are called on to provide this (Groundwater-Smith, Ewing, Le Cornu, 2003; Norsworthy, 2002; Snook, 2000). The necessity of such a component can be further understood by considering the experience of reflection in a mirror. The experience is meaningless – without a mirror.

The literature reflects much faith in the role of reflection as a key catalyst for gaining learning from experiences as well as a process for confronting or critiquing the beliefs student teachers bring with them into the initial teacher education programme. For example, Minor, Onwuegbuzie, Witcher and James (2002, p. 2) noted that “. . . reflective teaching has emerged as an approach to teacher education whereby pre-service teachers are asked to think about their attitudes, beliefs, and assumptions, and to use reflection as a means to promote self-evaluation and change” (see also: Ferraro, 2000; Grootenboer, 2003; Klein, 2001; Loughran & Northfield, 1996; Loughran, 2001; Renner, 2001; Russell & Bullock, 1999; Schuck, 2002; Seale, 1998; Taylor, 1996). But what such an approach appears to assume is that learning is actually the students’ intention or focus.

What appears to be missing from the literature is consideration of not just what is learned through the ‘apprenticeship of observation’ about teaching, but what the students have learned through what one may call the ‘*apprenticeship of participation*’ (Norsworthy, 2005a). Through many years of participation in the current educational system students have developed a plethora of ways to be successful in that system in order to finish the year or gain an award. As demonstrated earlier in this review student teachers come to initial teacher education programmes with established beliefs about teaching which have been shown to be difficult to change. But they also come with beliefs about how to achieve educational success. Often, the desire to learn is surpassed with an expectation to complete and gain credit. It appears many learners have developed alternative strategies to those of information seeking and cognitive restructuring – rather they wait for the ‘right’ answer to be provided and then rote learn and creatively regurgitate the same (Appleton, 1996; Claxton, 1990; Dobbins, 1996).

Approaches to reflection appear to assume that student teachers commence their teacher education as active learners, or indeed as already possessing the skills, knowledge and disposition necessary for effective, critical thinking. One example where this assumption is not made can be found in the work of LaBoskey at Mills College, Oakland, California and more is written about this in the final section of this review. In very few cases does there appear to be any recognition that these goals, skills or Dewey’s pre-requisite dispositions need to be explicitly and developed (Boud, Keogh, & Walker, 1985; Cornford, 2002; Galvez-Martin, 2003; Haigh, 2000; Hatton & Smith, 1995). If reflection is called for without adequate orientation, preparation, guidance or scaffolding, students may see the process as yet another time consuming academic ritual and treat it in a cursory fashion as a routine task to be completed (Bean & Stevens, 2002; Korthagen, 1985). Research by Galvez-Martin (2003) reports that pre-service teachers do not reach higher levels of reflection as to be statistically significant through involvement in a Reflective Teaching experience, but rather “additional reflective exercises are necessary and critical to determine their continuous growth in their reflectivity” (p. 2). However, in her conclusion she noted: “The reflectivity achieved by pre-service teachers by the end of their programs is being lost after their first entry years as teachers” (p. 2). One might question whether it was in fact reflectivity

which was developed – or rather, practice with a way of processing given tasks consolidated.

Another issue which emerges within the literature is the fact that the reflective experience can be unsettling and if not managed well, destabilising. For the pre-service teacher who critiques the status quo and uncovers the dilemmas, the paradox, the ideological malaise; all this can lead to self-doubt and wariness about the system in which they plan to work. The target for reflection may be too large in the sense of system change and therefore does not connect with the pre-service teacher's understanding or experience at the time. It might be important to focus on one component at a time so that students can maintain confidence so that other areas remain stable (Cripps Clark & Walsh, 2002). In addition to the above however, the following uncomfortable states are seen by Boud and Walker as central to reflection: "a state of 'perplexity, hesitation, and doubt' (Dewey, 1933), 'inner discomforts' (Brookfield, 1987), 'disorienting dilemmas' (Mezirow, 1990), uncertainties, discrepancies and dissatisfactions which precipitate and are central to any notion of reflection" (1998, p. 191).

In this day and age, where students are viewed as clients, with buying power, their dislike for such experiences can be quite influential. For example, Cornford (2002) reports how, in the light of negative feedback, the reflective practice specific component of an adult education degree was dropped because students considered it an insult not to already be considered critical thinkers in their area of specialisation:

While it is possible that the overly enthusiastic, uncritical approach displayed by some lecturers in presenting the reflective practice led to student dissatisfaction, many of the underpinning practices, such as keeping reflective diaries, were seen as time consuming and not resulting in substantial insights. (p. 225)

This section has considered challenges and possible hindrances resulting from notions of, and approaches to reflection within initial teacher education. What appears to be missing from this consideration is interaction with Dewey's pre-requisite characteristics. The next section of this chapter considers the way in which approaches to reflection fail to confront and engage such attitudes and dispositions.



### **5.6 Missing: Dewey's pre-requisite characteristics**

Very little teacher education literature appears to pay attention to either early recognition of, or deliberate attention to, and development of, the attitudes Dewey identified as pre-requisite for reflection: open-mindedness, wholeheartedness and responsibility. While reference to Dewey's attitudes may exist (Galvez-Martin, 2003; Power, Clarke, & Hine, 2002; Walkington, Christensen, & Kock, 2001; Woodcock, Lassonde, & Rutten, 2004), very few teacher educators have seriously embedded within the design of their teacher education programme organisation, content and/or process factors which will develop and sustain these pre-requisite attitudes. Such consideration would include contextual and personal factors such as those addressed by Dewey when he wrote about the importance of curiosity and a context within which it may flourish.

Rationalising why such attitudinal development appears to have been ignored or overlooked within teacher education programmes necessitates engaging dominant positivist, or pragmatic ideologies, such as those found in viewing the 'teacher as technician'. Even the effective teacher literature largely ignores such development due to its predominant view of teacher as cognitive decision-maker. More recent literature which gives credence to the importance of holistic consideration of the person who reflects, or teaches, may be encouraged to value this critical component of Dewey's approach to reflective thinking and teaching. Dewey posited that reflective thinking by a person with these attitudes is emancipatory, encompassing the potential to liberate the teacher from the tyranny of technique and the status quo. Dewey can make this claim because of his belief in the power of ideas and the fact that reflection targets these ideas.

This section has focused on Dewey's important pre-requisite characteristics. The next chapter section reviews the literature in terms of what was, for Dewey, also a very important and particular emphasis: contextual factors within which reflective thinking was to occur. The attention to thought patterns and thinking needs to be across all of self, subject, pedagogy and institutional structure and policy for this potential to be realised (Smyth, 1992). Previously identified barriers do not occur within vacuums but rather exist in complex cultural, social and highly political educational and academic contexts or institutions.

## 5.7 Contextual factors which act as barriers

Boud and Walker (1998) noted that the inclusion of ideas about reflection and reflective practice into initial teacher education programme contexts which themselves are not conducive to the questioning of experience is indeed problematic. According to Boud and Walker, such situations do not allow learners to explore those states central to any notion of reflection.

Dewey was emphatic that attention to context and the teacher within the context was paramount. Vygotsky (1987) reminded us that educational environments are social creations which can therefore be altered. In fact, Mueller and Skamp (2003) link ultimate change in pedagogy with creating specifically designed spaces which are conducive to, and supportive of the reflective process. With reference to the reflective process, teacher educators would view such spaces as critical given its sensitive and vulnerable nature. Manternach (2002, p. 274) drew attention to how the context constrains and shapes inquiry:

As interpreters, teachers must have an ability to discern, acknowledge and engage important questions for themselves as well as with others. This interchange of active ongoing interpretation between teachers and learners must consciously foreground **how the context of our learning shapes the questions we find ourselves asking or not asking.** [emphasis added]

There are many institutional factors which may indeed act as barriers to effective reflective practice and the bringing about of a technical-rational paradigmatic demise. First, the notion of a shared conceptual framework which identifies the purpose and role of reflection will be considered. Second, the focus will be on institutional ‘hidden curriculum’ particularly as displayed in timetables, assignments and expectations. Finally, the lack of modelling effective reflective thinking by significant others within the initial teacher education experience is highlighted.

### 5.7.1 *The lack of a shared conceptual framework and language*

Previously, attention was drawn to the fact that pre-service teachers experience initial teacher education as a smorgasbord of course offerings. In 1992, Harrington wrote: “Reflection has been defined in a variety of ways but what seems missing from much of the literature on reflective practice is a theoretical/conceptual framework linking ends and means” (p. 67). In 1998, Boud and Walker took issue

with what they considered to be a "checklist" or "reflection on demand" mentality. They viewed reflection processes with no link to conceptual frameworks, a failure to encourage students to challenge teaching practices, and a need for personal disclosure that was beyond the capacity of some young teachers as weaknesses which needed to be overcome through educators who would "create an environment of trust and build a context for reflection unique to every learning situation" (1998, p. 199).

#### *5.7.2 Lack of allocated time as an institutional barrier*

The issue of not enough time, if any, being allocated to the process of reflection and the development of its prerequisites is a major issue for establishing and maintaining a reflexive stance (see, Allerby & Elidóttir, 2003; Day, 1999b; Gelter, 2003; Haigh, 2000; Larrivee, 2000; Rodgers, 2002b; Ross & Weidner, 2002). "It is only when we have dedicated time that we can focus in this concentrated manner and actively think in depth about what we are doing" (Gelter, 2003, p. 340).

Larrivee (2000) believed it is the actual allocation of time which alerts the pre-service teachers of the importance of this thoughtful inquiry of one's actions. The development of a discursive or dialogical environment requires the allocation of intentional, identified and dedicated time and space. It takes time to develop the trusting relationships which support and scaffold pre-service teachers who need to be secure through the vulnerabilities associated with the reflection process. As such provision is expensive; it is only likely to occur when a programme is designed on the basis of a clear conceptual framework. Interestingly, Zeichner (1999) acknowledged that the biggest mistakes made in his initial attempts to introduce action research into the practicum setting was first, the failure to take adequate time to help students examine, or re-examine their ideas about research, and second, failure to take into account the nature of the "culture and its expectations about what is to go on and what is important" (p. 8). While the literature identifies the need for allocated and identified time in which to be thoughtful and reflective, it appears that seldom is such time protected within teacher education programmes. According to Gelter (2003) our conscious mind is like a "flashlight constantly flickering around our perceptive world and we need to put in energy and effort" (p. 340) and that takes time, when trying to keep it in one place. It is only when we have dedicated time that we can focus in this

concentrated manner and actively think in depth about what we are doing. Conversely, where students do not view reflection as a worthwhile activity, they resent the time involved in completing such a task (Haigh, 2000; Leung & Kember, 2003). However, it is not just time which can be problematic. This section of the review has highlighted a range of barriers to reflection. The focus now moves to literature which claims effective models for reflectivity in teacher education.

## **6. How might reflectivity in teacher education programmes be effective?**

In this sixth and final section of the literature review, time and space is taken to consider what might be an approach to teacher education which does not remain caught in the clutches of the technicist-rational paradigm. One case study is presented followed by a small foray into the teacher education literature which focuses on an intentional goal to develop reflective thinking and teaching in the curriculum area of teaching science.

### **6.1. The work of Vicki LaBoskey.**

In her early work, LaBoskey noted that if the goal for teacher education programmes is to prepare beginning teachers as reflective teachers then it makes sense that “one objective of the activities should be to teach the novices what it means to be reflective and how one goes about reflecting” (1993, p. 26). Her teacher education programme reflects beliefs espoused by Dewey (1910) (see previous reference to the idea of buying and selling) and Fenstermacher (1986) where the emphasis is not so much to bring about learning but to improve ‘studenting’.

Most teacher educators would teach their pre-service students that the context of teaching matters. This is another belief in which LaBoskey seeks cogency between her belief and actions:

All educational endeavors take place within a certain context that will influence and should, therefore guide the choices teachers make and the actions they take. I, too, am a teacher; thus, I, too, need to take context into account when I design my curriculum and pedagogy. (1997, p. 151)

There are some unique characteristics of the elementary credential programme which LaBoskey calls ‘mine’. First, as LaBoskey (1997, p. 151) reported, she has “virtually complete control over the design and operation of the program” and this

includes “teaching almost all of the courses, advising all of the students, and supervising many of them”. Second, in order to allow the development of personal relationships with all of the students, the programme is small with an average cohort size of 15 graduate students per year. Third, many of the students who choose this programme “are usually aware of, and attracted to, the program goals and principles” (LaBoskey, 1997, p. 151). These principles<sup>9</sup> reflect LaBoskey’s commitment to social justice for all and the conceptualisation and role of reflection in the development of a reflective teacher and guide her design and evaluation of assignments as well as activities in which students participate (see LaBoskey, 1997, pp. 153-154).

### *Conceptualisation of reflection*

The conceptual framework which informs LaBoskey’s work with pre-service teachers conceives reflection as “an effort to transform any naïve or problematic conceptions about teaching and learning held by entering students into those more conducive to pedagogical thinking” (LaBoskey, 1993, p. 27). As a teacher educator, LaBoskey aligns herself with van Manen’s (1991) notion of tact as “the practice of being oriented to others” (p. 142) or “the capacity for mindful action” (p. 122) and the implications for practice which accompany it. Thoughtful reflection is then the process of questioning and examining “the reasons behind and the implications of her knowledge, beliefs, and practices” (LaBoskey, 1997, p. 150). Dewey’s notion of ground of belief is embedded in her view of reflective thinking as “a constant and careful consideration of a teacher’s beliefs and actions in light of information from current theory and practice, from feedback from the particular context, and from speculation as to the moral and ethical consequence of their results” (LaBoskey, 1994, p. 9).

Previously identified is the fact that very little teacher literature appears to pay attention to the development of Dewey’s pre-requisite attitudes of open-mindedness, responsibility and wholeheartedness, or his skills of inquiry. Here, once again, LaBoskey’s (1993, 1994, 1997, 2001, 2004) work is an exception. She claims that “especially critical to my conception of the reflective process are

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<sup>9</sup> See Appendix A for a short explanation of each principle and its place in the teacher education programme.

Dewey's attitudes of open-mindedness, responsibility and whole-heartedness" (1994, p. 13). This commitment can be seen in programme, organisational, and course design, on-campus and field experiences – including assignment design and development. As has already been established, LaBoskey takes her role as teacher educator and model seriously and her definition of reflection shapes the assignments she requires of her students.

Earlier in this chapter, doubt was cast on the restricted view held by Dewey, and many teacher educators since, that reflection begins with a problem to be solved. LaBoskey (1994) departs from this aspect of Dewey's work and recognises other possibilities such as: "when a teacher simply wishes to rethink an educational situation or a conclusion previously reached – maybe even one with which he or she has thus far been satisfied" (p. 11). "That is, teachers demonstrate in their teaching sensitivity to what will be most beneficial for their students. They develop their potential for tactful action through the process of thoughtful reflection" (1994, p. 17). The notion of 'thoughtful reflection' is, according to van Manen (1991, p. 206), "not just an intellectual exercise, but a matter of pedagogical fitness of the whole person". That is, cognitive, emotional, moral, sympathetic and physical preparedness.

In answering the question, "Can all pre-service teachers reflect on their learning and teaching?" LaBoskey takes an interesting approach. She does not describe pre-service teachers as either wholly reflective or unreflective, but rather discriminates on the basis of the consistency with which one reflects. LaBoskey refers to those who do not reflect consistently as Commonsense Thinkers (1993, p. 27). These are student teachers who, in her initial research, she identified as either unable to engage in reflective activities, or while able to engage they had beliefs, values, attitudes or emotions that prevented or distorted the reflective process in most situations. Such students tended to focus on questions such as: What works? or How do I ....? In contrast, those who do reflect consistently, described as Alert Novices, demonstrated two characteristic tendencies. The first is that they tended to 'be guided by a strong belief'; what LaBoskey referred to as a passionate creed – meaning they have a purpose, a rationale for, and a mission to accomplish in and through their teaching. The second characteristic of Alert Novices was their

tendency to ask the question, “Why?” According to LaBoskey (1994), these Alert Novices had the cognitive ability and conducive beliefs, values, attitudes and emotions, the capacity and the willingness to reflect (Haigh, 2000; Hill, 2000). While the literature reports increasing focus on the idea of autobiographical reflection (Connelly & Clandinin, 1988; McDrury & Aterio, 2002; Smith & Latosi-Sawin, 2000), LaBoskey indicated that Alert Novices move beyond the “tendencies of their own biographies and the apparent mandates of their current circumstances to envision and consider alternative interpretations and possibilities” (1994, p. 9). In Dewey’s parlance they were open-minded, wholehearted and responsible. In other words they approach life and learning from an *inquiry stance*.

In contrast, Lee and Wong (1996) using questionnaires and in-depth interviews, investigated if there were qualitative differences in the contents of reflection between the ‘common-sense thinkers’ and the more reflective ‘alert novices’. They reported that responses in both the questionnaire and in-depth interviews showed a dominance of technical reflection, with relatively few pre-service teachers attaining the level of critical reflection. This result suggests that it is an amalgam of many factors which is necessary for reflectivity to be developed. LaBoskey’s research suggests that “generic approaches to the educating of reflective teachers are not sufficient” (p. 129).

LaBoskey (1994) found a division between reflective students who desired to learn, and students who had difficulty in engaging in reflection, owing to shortcomings in their cognitive and/or emotional skills. Further, she found that at the end of the programme these students were still not reflective according to her definition of the word. If one agrees that “if not a reflective teacher, then never a teacher,” (p. 133) this finding has implications for recruitment and admission to initial teacher education programmes. LaBoskey (1994) suggested that there may be value in assessing prospective students’ reflective abilities and orientations both prior to and in the early stages of their teacher education. Part of this assessment would be to identify the motivating reasons for becoming and being a teacher and “at the nature of the questions being asked” (p. 133) about their own learning and practice. LaBoskey is resolute that at the very least admission to teacher education must not rest solely on grade scores or previous qualifications.

In this section the work of teacher educator, Vicki Kubler LaBoskey has been used as a case study to identify possible hopeful ways forward for teacher education which develops neophyte teachers who are reflective. Attention now turns to the literature which focuses on reflective approaches embedded in the practice of teacher educators involved with pre-service teachers learning to teach science.

## **6.2 Teacher educators, reflection, and teaching of science**

This final section on science education is included because the current study has the teaching of science to pre-service teachers as its initial context. Together with the reasons above for a commitment to reflection, two characteristics of teacher educators utilising a reflective approach to learning to teach science are identified in the literature. These include taking seriously their role as a reflective teacher educator and second, positioning student teachers as reflective learners.

### *6.2.1 Being a reflective teacher educator*

In preparing student teachers to teach science there is agreement (Berry & Loughran, 2002; Hoban, 1997, 2000; Loughran, 1996, 2001; Lowery, 2003; Russell, 1997; Loughran & Northfield, 1996; Schuck & Segal, 2002) that “the importance of reflective teaching is a central component for designing teaching and learning experiences” (Lowery, 2003, p. 23). It appears that teacher educators take seriously that what they “believe matters in teacher preparation” (Loughran, 2001, p. 2). The title of Kosnik’s (2003) article captures this characteristic: *Reflection in teacher education: It begins with me*, as does Russell’s (1997) chapter heading, ‘Teaching Teachers: How I teach IS the Message’. This key idea is summarised by Berry and Loughran who noted that “How we taught had much greater impact on student teachers’ thinking about practice than what we taught” (2002, p. 15). Believing that they are models for the student teachers and that their own actions speak louder than their words, these teacher educators seek to both take, and generate opportunities to be, do and exemplify what it is they are asking of pre-service teachers. This means, for example, that they appear to be willing to take apparent risks with curriculum (Berry & Loughran, 2002) and are not beholden to the “perceived need to pack the curriculum with all the knowledge, skills, attributes and practices necessary to address the multitude of demands that are perceived as needing to be addressed” (Loughran, 2001, p. 1). Instead, they intentionally create



conditions for learning (Berry & Lougran, 2002; Loughran & Northfield, 1996) seeking learning experiences both on and off campus to help their students become reflective science teachers who are learners (Berry & Loughran, 2002; Lowery, 2003; Loughran, 2001; Loughran & Northfield, 1996).

Committed to a concern that student teachers view teaching as a “thoughtful, professional, planned activity rather than as a spontaneous performance or the enactment of a prescribed script” (Berry & Loughran 2002, p. 15 ) they seek ways to model critique of teaching *before* expecting the students to take such risks. Such vulnerability is not presented as easy or comfortable but, as with LaBoskey, is an example of the degree to which they believe in the potential of the reflective learning experience.

In this respect it is noticeable that this group of teacher educators research their own practice (Berry, 2004; Loughran, 1997, 2001; Loughran & Northfield, 1996; Lowery, 2003) as well as participate in the reflective experiences they design for their student teachers. They recognise that reflection is not an easy task (Lowery, 2003). By participating in similar reflective activities to their students they provide a model (Berry, 2004; LaBoskey, 1997) as well as gaining understanding of the challenges and frustrations their students face (Loughran, 2001; Lowery, 2003). There is a belief that such activity and understanding leads to student teachers respecting the teacher educator and increases the likelihood of them being willing to learn from them. In order to ‘practice what they preach’ or ‘walk the talk’ it would be unlikely that these teacher educators will be found lecturing their students at length.

#### *6.2.2 Student teacher as reflective learner*

A previous section of this chapter has indicated that typical teacher education views learning to teach as the process of gaining practical experience and theory to apply in practice. Until recently there was little attention to person or setting and while acknowledgement was given to the fact that student teachers brought firm fixed ideas about teaching to their teacher preparation, little was done to engage these ideas. The teacher educators who tend to take a reflective approach to teaching student teachers to teach science do not appear to fit that mould. They

focus on the student teacher as person, and importantly, as learner, believing that the “learners’ experiences of learning are typically undervalued” (Berry & Loughran, 2002, p. 18).

This brief section which focused on research literature from teacher educators involved with teaching how to teach science reverberates with many of the ideas within the previous sections on reflection. It honours the joining of reflecting *in* practice and reflecting *on* practice as the process of reflecting *for* practice. These are characteristic of self-study which is outlined in the methodology chapter to follow.

## **7. Chapter summary and conclusion**

The recurring claim that teacher education appears to not make any difference to students on their journey to teaching, or if it does, then such change is unpredictable, indirect and short lived (Calderhead, 1989; Day, 1999a; Fletcher, 1997; Hatton & Smith, 1995; Kagan, 1992; LaBoskey, 1994; McMahon, 1997; Reiman & Theis-Sprinthall, 1995; Valli, 1992; van Brummelen, 1997) is unnerving to teacher educators and has led some teacher educators to be intentional in their interventions. The process of reflection has been pivotal in this intentionality which reflects Dewey’s preference that teachers engage in reflective rather than routine practice. By requiring student teachers to be intentional and reflective, not just about their teaching but about their own learning as well, teacher educators are hopeful of breaking the cycle referred to above. This hope sees teacher educators place an emphasis on including the reflection process in an anticipatory manner within the planning process rather than restricting its application to a reactionary or retrospective manner.

One can imagine that teacher educators would take exception to the above paragraph if it were to insinuate that teacher educators are not intentional in their work. Intentionality is demonstrated in different ways and what the literature suggests is that for those teaching student teachers to teach science this intentionality includes a belief that teachers can become ‘inquirers’ through reflective experiences and this belief has strongly influenced the approaches to science methods courses. But, as it is for the notion of reflection, this means

different things for different people and results in different learning experiences for student teachers dependent on the teacher educator's view of reflection, learning and teaching, together with their willingness to challenge predominant assessment paradigms and structural realities within their institutions.

The literature indicates a strong tendency for teacher education to hardly touch the surface of students' beliefs and subsequent practices. While reflection is claimed to address this problem, there is scant evidence of this occurring. Moreover, the whole enterprise of reflection is disputed and controversial. It is noted that while reflection and reflexivity were looked to for the advantages of equipping teachers to challenge simplistic thinking and move that thinking beyond one simple viewpoint, and one classroom context, it has tended to be treated as an individualistic cognitive, problem solving task related to practicum experiences. It appears that in most studies pre-service teachers were not prepared for the unsettling phase which often occurs with authentic reflexivity. Nor, were reflective tasks embedded in an institutional, on-campus context which was organised and structured in terms of time and courses to develop reflexivity, rather than the completion of reflection tasks. It appears that the technical rational paradigm still holds major sway.

There are some exemptions to this and the work of LaBoskey and others indicates that much more can be done to encourage the development of reflexive teachers. However, what has become clear is that approaches to teacher education programmes which continue, by default, to emphasise the theory to practice dichotomy retain the dominance of the technical-rational paradigm which tends to reduce teaching to technique. This remains the case whether or not pre-service teachers within such a programme are involved in reflective activities.

There is a need to research how student teachers experience learning within on-campus courses as these experiences confirm, interrupt or challenge their predetermined images of, and beliefs about teaching (Eklund-Myrskog, 1996; Ingram, 1998; Kettle & Sellars, 1996; Mueller & Skamp, 2003). As indicated by Hamilton and Pinnegar (2000, p. 239) if as teacher educators we wish to improve the experience of children in classrooms, then it is necessary to "study the impact

of our teaching on the thinking and practice of our students.” This is particularly so in relationship to the notion of the reflective professional. Therefore, the critical question which draws together the issues in this literature review and which is the focus for this study is: “What does pre-service course work within an initial teacher education programme contribute to the development of the reflective professional?”



## **Chapter Three**

### **Methodology: Conceptual Issues**

#### **1. Introduction**

This is the first of two methodological chapters. Wolcott (1992) claims that there are always dual facets integral to all research: the ideas that drive the work and the inquiry procedures used to pursue them. Such facets can be viewed as joined in complementary opposition (Wolcott, 1992) and both are addressed. This chapter presents the methodological journey with the ideas that drive the work. This journey parallels the study's focus of moving pre-service teachers from reflection as task, to reflexivity as disposition, in a very interesting way. However, it did not begin like this. The focus of this study is the exploration and understanding of the expectations brought, and the meanings attached, to experiences of pre-service teachers and teacher educators within an initial teacher education preparation programme. Of particular initial interest in the study was consideration of my own experiences as a teacher educator, and consequently the personal focus of my work was rooted in a predominantly qualitative research methodology. Initially, the choice to undertake a self study into my personal experience as a teacher educator seemed appropriate. However, as the study proceeded, the challenges and limitations of working with self study methodology emerged and a broader methodological framework was developed.

First, this chapter reports the increasing tide of practitioner research particularly within educational research. Second, it identifies some of the key factors which led to the development of self study as a research methodology, outlines five key characteristics of self study, and draws attention to some of the ongoing challenges and limitations of self study. Building on the methodological discussion of self-study, the next section outlines the wider methodological considerations that underpin the present study. It is argued that placing the study within a critical

reflexive interpretive framework is beneficial. The conceptual framework for the study is then presented. This leads to Chapter Four which elaborates on the second of Wolcott's dual facets, the actual methods and procedures used to conduct the research.

Issues flowing from my experience as a teacher educator have been introduced in Chapter One and explored through the literature review in Chapter Two. The combination of understanding refined through an initial review of the literature, together with motivation from my commitment to the preparation of beginning teachers who practice and model active learning, resulted in the development of the following initial question to guide the research study.

- What does pre-service course work within an initial teacher education programme contribute to the development of the reflective professional?

In order to examine this question closely, a number of sub-questions emerged:

- What factors are perceived to inhibit pre-service teachers being reflective?
- What factors are perceived to nurture pre-service teachers being reflective?
- In what ways might pre-service teacher education be altered to enhance pre-service teachers' disposition to be reflective?

This study focuses on the ways in which Clearwater Institute<sup>10</sup>'s commitment to the development of reflective practitioners is experienced by those involved within the initial teacher education programme: particularly two cohorts of pre-service teachers and a small group of teacher educators. The researcher's experience as a teacher educator with pre-service teachers' enrolled in *Teaching of Science*, a methods paper which focuses on the teaching of science, is itself a focus for enquiry and provides the context for the initial phase of the study. The second phase of the study focuses on the institutional context. While the research question was foundational to the choice of methodology and subsequent analysis, it provided general direction for the study rather than a restrictive and precise road map to be followed.

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<sup>10</sup> Not its real name. Clearwater Institute is used as a pseudonym for the institution which was the context for this study.

## **2. The emergence of practitioner-led research**

Given that reflective practitioners examine their own practices in an effort to improve their teaching, and that teaching involves values, beliefs and assumptions, it was only a matter of time before such activity began to be written up as educational research. Ironically, while some teacher educators were increasingly involved in research with teachers in schools, until recently it was less common to see such research directed at their own teaching practice, decision-making or the beliefs which informed this (Richardson, 1996; Sandretto, Lang, Schon, & Whyte, 2003; Short, 1993; Wideen, Mayer-Smith & Moon, 1998). However, the past 10 to 15 years have seen a surge in teacher educator research. By this I refer to the growing number of studies which, rather than seeking to apply knowledge generated by those outside the teacher education scenario, are undertaken by teacher educators researching their own practice<sup>11</sup> (e.g., Berry & Loughran, 2002; Hoban, 1997, 2000b; LaBoskey, 1994; 1997, 2001; Kitchen, 2005). Over this same period of time, a burgeoning interest in reflection has been observed and the link between this and the growth in research approaches where educators research their own practice is significant. Reflective practice has facilitated the investigation of the metaphorical layers of the onion of professional practice. Outsider-led research can describe the actions of teacher educators and pre-service teachers but research undertaken by teacher educators on their own practice attempts to be reflective about the ‘espoused theories’, ‘theories-in-use’ and ‘knowledge base’ which both constrain and sustain current practice.

The influence of postmodernism and its associated epistemologies is also seen to support the growth of teacher educator led research (Berry, 2004). Given the postmodern distaste for ‘formal theory’ or ‘grand narrative’, experience has been granted centre stage, leading to the generation of a range of theoretical positions, all of which are seen to be authentic and worthwhile. The postmodern influence

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<sup>11</sup> Examples are increasingly numerous and also include the following: Beck, Freese & Kosnik, 2004; Cochran-Smith & Lytle, 2004; Cole & Knowles, 1996; Dinkleman, 2003; Ferry & Corrent-Agnostinho, 2001; Guilfoyle, Hamilton, Pinnegar, & Placier, 1995; Hamilton, 2001; Johnson, Kaplan, & Marsh, 1996; Kuzmic, 2002; LaBoskey, Samway, & Garcia, 1996; Lomax, Evans, Parker & Whitehead, 1999; Loughran, 1996, 2004; Loughran & Northfield, 1996; Montecinos, Cnudde, Ow, Solis, Suzuki, & Riveros, 2002; Mueller, 2003; Munby & Russell, 1994; Russell, 1997; Russell & Bullock, 1999; Sandretto, Lang, Schon & Whyte, 2003; Schuck, 2002; Senese, 2002).



has shifted teacher education research away from convergence and conformity to make room for divergence and diversity (Jenkins, 1996). Such an approach is well served by some forms of practitioner research, which seek to include aspects of ‘voiced research’, and consequently provide an arena in and from which may be heard the voices of those “previously excluded, muted, or silenced by dominant structures and discourses” (Smyth, 1999, p. 74).

Teacher educators who research their own practice offer not just a different perspective on the learning environment, but also a way to transform that environment (Short, 1993). Such transformation or improvement may occur, in part, due to increased understanding of the complexities of teaching and learning (Loughran & Northfield, 1996). In fact, Nash (2002) regards that such study is a professional responsibility. Practitioner research is a response to a traditional approach to knowledge creation where a valuing of the lens of objectivism saw the inquirer situated on the outside of whatever was being studied (Palmer, 1998) and resulted in the academic community supposing that the problems studied belonged to others and were not our own.

### **3. Development of Self-Study**

Action research, with its cycle of plan, act, observe and reflect (Kemmis & McTaggart, 1988) is probably the best known form of practitioner research. However, over the past decade one of its variations, self-study, has found increasing momentum where educational research is motivated by a desire for reform or improvement in practice. This particular research approach began to be recognised in 1993 at the American Educational Research Association conference where a special interest group was established. Known as the Self-Study of Teacher Education Practices (S-STEP) group, they recognized both the need for research studies of the places where they practised as well as the importance of self in such studies. From this group, an approach to research within teacher education and other professional preparation groups has grown and developed to the point where there is now widespread recognition of this research methodology.

The development of self-study methodology is said to be influenced by a range of factors. For example, Loughran (1996) suggests that the growth in self-study research may be an outcome of educators working with or developing Schön's ideas about reflection-on-practice. Another research focus in the early 1990s which contributed to the development of the self-study movement relates to consideration of the "power of personal theorizing in the development of knowledge about teaching and learning" (Hamilton, 2001, p. 5). According to Berry (2004, p. 1304), "self-study grew out of teacher educators' concern for the learning of their student teachers and for the learning of the future students of these student teachers".

Self-study research was heralded by Zeichner as "the single most significant development ever in the field of teacher education research" (1999, p. 6). As part of 'the new scholarship of teacher education', Zeichner (1999) observes teacher educators moving from reliance on outsider research to insider research; those who undertake the research in teacher education are those who do the work of teacher education. While one hope is that such self-study would improve the standing of teacher education within the university and tertiary domain, it is also believed that such reflective investigation is likely to lead to improved practice (Clift, 2004; Connelly & Clandinin, 1990; Loughran & Northfield, 1996; Richardson, 1994; Senese, Fagel, Gorleski, & Swanson, 1998). One appeal to the teacher educator of such research is the opportunity it provides to investigate, examine and therefore, minimise the contradictions between the content and the process of our teaching (Russell, 2002). When teacher educators position themselves as learners, then their own learning becomes a rich resource for inquiry.

### **3.1 Epistemological Foundations**

Self-study is one approach to research which followed the introduction of naturalistic and qualitative research methods into education. It also reflects the trend away from modernism and its assumptions about legitimate knowledge and knowledge production, and the related trend toward broadening what counts as research. Epistemological foundations for self-study are "derived largely from postmodern, feminist, and post-colonial paradigms" and thus the resultant perspective considers knowledge production and development as "context and

culture sensitive” (LaBoskey, 2004, p. 818). In comparison to action research, self-study moves the role of stimulating the process of reflection so that those participating may generate their own theory (Elliot, 1988), from the action research facilitator at the periphery, to the centre of both the practice and practitioner. Such an approach clearly positions the researcher as part of the social world at the heart of the study and leads to a focus on the ‘researcher-self’ (Alvesson, 2002, p. 171). As already mentioned above, to varying degrees either the researcher’s personal experiences, or explorations of the experiences of those with whom the researcher is involved on a day-to-day basis, are placed at the centre of the study. In other words, self-study is a place where teacher education research and practice meet (Russell, 2004).

According to LaBoskey (2004) self-study researchers question the distinction made between formal/theoretical and practical knowledge. This division between formal knowledge (knowing that) and practical knowledge (knowing how) (Van Brummelen, 1998) is common, even if framed within differing teaching approaches. The division is based on an argument for two irreducible modes of thought (Eisner, 2002; Schaeffer, 1976): a) universal or paradigmatic which are seen to be context free and generalisable, and b) particular or narrative which are viewed as context sensitive and non-generalisable. While, in Bruner’s terms, a technical-rational approach to teacher education may privilege a paradigmatic approach at the expense of the narrative, current efforts are seen to balance the two, given a belief that “narrative knowledge ... better characterises the knowledge of teaching” (LaBoskey, 2004, p. 823). According to Berry (2004), those who have undertaken self-studies find the conventional social science methods “unhelpful for the development of understanding of practice” (p. 1306) and consequently they seek alternative approaches to framing knowledge that can “capture the complex and personal nature of the knowledge acquired” (p. 1306).

### **3.2 Characteristics of Self-Study**

The question may be asked if self-study is not so much a distinct approach to research as “. . . action research conducted with special reference to the significance of self” (Russell, 2004, p. 1200). However, Hamilton (2001, p. 6) distinguishes self-study and action research as follows:

In action research the researcher's work results in an action of a particular sort. Usually this work centers in the classroom, is undertaken by practitioners, and undertakes a cycle of identifying a problem, decides on a plan, implements the plan, evaluates the results, and then begins the cycle again. Often, if not always, this work includes an observable change in practice. On the other hand, self-study may result in an action, but of a less obvious sort.

The notion of self study appears to still be evolving. In 1996, Cole and Knowles wrote that “self-study for purposes of self-understanding and professional development is essentially being thoughtful – in a Deweyan sense – about one’s work. It is reflective inquiry, similar to that widely advocated for teachers” (p. 2). For these authors, the emphasis was on “understanding ourselves as persons and professionals in the contexts within which we live and work” (Cole & Knowles, 1996, p. 3). Working within the nursing tertiary domain, Drevdahl, Stackman, Purdy, and Louie (2002), while enthusiastic about the possibilities that self study and reflective inquiry seemed to hold for them as university teachers, reported that the literature lacked a good model for them to follow to move self-study and reflective inquiry beyond the concerns of the individual teacher to creating knowledge usable by other university faculty. Consequently, on the basis that both self-study research and reflective inquiry have self-reflection and inquiry as chief tenets and their synthesis of the literature, they developed their own three stage model for conducting what they called “reflective self study” (p. 414). The three stages are:

- Assessment phase – researchers determine whether conditions amenable to conducting reflective self-study are present
- Implementation phase – teachers/researchers focus on selecting data collection and analysis methods, paying close attention to process and validation issues
- Dissemination phase – researchers make findings and the consequential contribution to pedagogical knowledge public before returning to the assessment phase, having discovered new questions to investigate about themselves from the process of inquiry.

Similarly, one may ask the question, “Is self-study equivalent to reflective practice?” LaBoskey (2004) makes it clear that self-study is not equivalent to reflective practice. While self-study may embrace the process of ‘reflective practice’ or ‘reflective inquiry’, such research is undertaken with “a ‘commitment

to check data and interpretations with others' (Loughran & Northfield, 1996, p. 12)". It involves a variety of viewpoints, seeks a divergent rather than convergent outcome and is public and open to scrutiny. For LaBoskey (2004, p. 825) self-study is better aligned with Cochran-Smith and Lytle's (1999) 'inquiry as stance', where they posit that "teaching and learning is understood not primarily as individual professional accomplishment but as a long-term collective project with a democratic agenda (p. 296)".

Initially Barnes (1998) identified the following three conditions as necessary for the success of self-study: framing, collaboration, and openness. Over time the list has grown - Bullough and Pinnegar (2001), for example, present 14 guidelines for self-study. However, there appear to be five key characteristics which are generally accepted as being required for research to be categorised as self study.

### *3.2.1 Self study: Self initiated and focussed*

First, the research should be self initiated and focussed (Bullough & Pinnegar, 2001; Clift, 2004; Hamilton, 2001; LaBoskey, 2004; Loughran, 2003). An early definition of self-study provided by Hamilton (2001) viewed it as the: "teacher educator's look at practice centering that work on the self rather than using someone else as the focus of the work" (p. 5). Self-study should promote insight and interpretation in a manner which "engages readers in a genuine act of seeing the essential wholeness of life," (Bullough & Pinnegar, 2001, p. 16), attending carefully to persons in context or setting (Bullough & Pinnegar, 2001, p. 18), and giving recognition to the dynamic struggle of living life as an 'undivided self' (Palmer, 1998).

The term self-study may be misleading in that one may assume that the focus of research conducted under this banner may be limited to the study of one's self. This is not the case. When those who write in the field of self-study research refer to self-study focusing on self, it is the whole self which is targeted, not a bounded part called 'teacher' or 'teacher educator'. It is self historically situated with her past and present; physically situated in body, time and place; and, it is self holistically situated including spirituality, belief commitments, emotions, feelings and cultural traditions (Bullough & Pinnegar, 2001; LaBoskey, 2004). Each of

these dimensions is “investigated for their connections with and relationships to practice” (Hamilton & Pinnegar, 2000, p. 236).

### *3.2.2 Self-study: Aimed at improvement*

Second, self-study research is aimed at improvement. Initially the target is improvement of one’s practice, but this necessarily also involves improvement of the context in which that practice is situated (Cochran-Smith & Lytle, 1999; LaBoskey, 2004; Lomax, Evans, Parker & Whitehead, 1999). According to Bullough and Pinnegar, self-study is underpinned by an “ineluctable obligation to seek to improve the learning situation not only for the self but for the other” (2001, p. 17). Often this characteristic is seen as part of a wider desire for social justice, democratic values and equity among student populations.

### *3.2.3 Self-study: Public account maintains a sense of tension*

Third, self-study must be made public. As for all endeavour which qualifies as research, self study work is a “disciplined and systematic inquiry” (Zeichner, 1999, p. 11). Resultant writing is required to report interrogation of any revealed relationships, contradictions and limits, while at the same time contain and maintain a sense of “complication or tension” (Bullough & Pinnegar, 2001, p. 20). In other words, the study must engage the researcher’s own biases and prejudices, assumptions and beliefs in a manner which recognises that something genuine is at stake in the study and resultant research report. Also, the process of self-study, with its framing and reframing of the practice setting, must employ “a variety of viewpoints” and seek “divergent rather than convergent learning outcomes” (LaBoskey, 2004, p. 825). In this sense, even its publication will honour self-study’s ability and intention to “provoke, challenge and illuminate rather than confirm and settle” (Bullough & Pinnegar 2001, p. 20).

### *3.2.4 Self-study: Interactive and collaborative*

Fourth, self-study is interactive or collaborative; only possible with the input of others (Bullough & Pinnegar, 2001; LaBoskey, 2004; Loughran & Northfield, 1996). There seems to be a range of interpretations as to what this means. For some, the notion of collaborative means that self-study cannot be undertaken by oneself but must include a critical friend. An example of this would be Loughran and Northfield’s (1996) study, where Northfield, a teacher educator, returned to the

classroom. Lomax, Evans, Parker and Whitehead (1999) report on their failed attempt at 'joint self-study' where the intention was to "use email to share and critique each others' ideas" and in which the process would "help each other to improve our individual practices" (p. 238). The process however was inhibited either by, or perhaps by both, the communication nature of the mixed gender group or the use of the communication tool, email. By design, their article seeks to raise "serious issues about collaborative work that are rarely raised". Of particular interest here is, even though they have much experience with the self-study movement, their self acknowledgement that:

We did not question our understanding of self-study. We did not see the need to distinguish the joint self-study method from the collaborative practices and partnerships that were intended as the focus of our study .... [or] ...whether it was possible to move it from the specific interests of an individual to become a shared activity (pp. 240, 253).

Perhaps self-study's required collaboration is problematic. This study certainly raises the question as to the difference between a joint study and a self-study which necessitates collaboration? Lomax et al. come to the conclusion, that "[i]t seems likely that effective self-study needs a concrete focus and, where joint self-study takes place, the focus needs to be a shared practice, if not a joint practice" (1999, p. 151). Loughran and Northfield (1998) suggested that, a commitment to checking data and interpretations with others might be an alternative to this required collaboration.

### *3.2.5 Self-study: Multiple methods involved*

Finally, as a research methodology, self-study includes multiple methods, the majority of which will be qualitative (Clift, 2004; LaBoskey, 2004; Louie, Drevdahl, Purdy, & Stackman, 2003). In fact, according to Hamilton and Pinnegar (1998, p. 240), "self-study research is a research methodology in which researcher and practitioners use whatever methods will provide the needed evidence and context for understanding their practice." Within self-study, the concept of validity is based on the notion of trustworthiness or believability (Clift, 2004; Hamilton & Pinnegar, 2000; LaBoskey, 2004; Lincoln & Guba, 1985; Mishler, 1990). This means that public reporting of the self-study should "ring true and enable connection" (Bullough & Pinnegar, 2001, p. 16) with others working in the same field.

### **3.3 The journey to become an accepted research methodology**

Practitioner research, and in particular self-study research, has become accepted within the research cultures of universities (Clift, 2004; Kane, Sandretto, & Heath, 2002; McWilliam, 2004), especially as indicated by the number of self-study articles in press and presentations made at educational conferences. The interest in studying one's own work may have "emerged from a dissatisfaction with the work of traditional research" (Hamilton, 2001, p. 6) but as may be expected, that traditional research continues to ask questions about the validity of such an undertaking. Of particular concern are that any such inquiry continues to be disciplined and systematic, is open to scrutiny and critique, and the two key factors for all research – that validity and reliability are fulfilled. Feldman (2003) suggested that one way in which the validity of self-study may be increased is by paying attention to, and making public, the way that its representation is constructed.

The process of researching one's own practice as a teacher educator typically contributes simultaneously to two key facets of teacher education. While self study views the teacher educator's work from an inside-out perspective, it typically includes consideration of student teachers' learning and development from an outside-in view. Results from such studies contribute to the knowledge base for teacher education pedagogy. For instance, LaBoskey (1994, 1997), initially known for her work in the development of reflective practice particularly for novice teachers, undertook an exploratory study which focused on those students in her teacher education courses to identify characteristics of beginning teachers who are reflective. As well as highlighting ideas for future research, findings from her study have contributed to the knowledge base of the teacher education programme at Mills College, Oakland, California.

It can be argued that teaching is a relational act in which the 'integrity and identity' (Palmer, 1998) of the teacher are critical and therefore worthy of research. Accordingly, Bullough and Gitlin (1995) supported the view held by the proponents of self-study that attempts to gain authentic self-awareness and the influence of this on one's own practice, could help others. It may seem redundant to state that to study a practice is to simultaneously study self (Bullough &



Pinnegar, 2001), yet the perception remains that research typically makes a distinction between the one who knows and does, and their knowledge and practice. In this sense, understanding what it is that teacher educators are trying to do is seen to be what matters. Through such inquiry and its consequential reporting on and publication, the ideas and insights gained are disseminated in the public domain (Loughran, 2002).

For those who still hold to research as a scientific, objective activity, practitioner research and its expressions such as self-study are still viewed as an alternative form of research activity which presents a challenge to the status quo (Cole & Knowles, 1996) and may even be described as an activity in which “the unqualified engage in confirming their own common sense” (McWilliam, 2003, p. 3).

However, teacher educator self-study certainly challenges the notion of ‘the unqualified’, as teacher educators seek more appropriate, learner sensitive and responsive ways to prepare pre-service teachers for the world and task of teaching. A selection of self studies within the broad field of teacher education include those focused on: generation of knowledge (Kuzmic, 2002; Loughran & Northfield, 1996); teacher educators’ roles (Kitchen, 2005; Lomax et al., 1999; Mueller, 2003; Russell, 2000; Schuck & Segal, 2002); the learning and teaching

process within teacher education, including constructivism and the use of reflection (Berry & Loughran, 2002; Dalmau & Gudjónsdóttir, 2002; DeMuelle, Anderson, & Johnstone, 1996; Dinkleman, 2000; Hoban, 1997, 2000a; Johnson, Kaplan, & Marsh, 1996; Schuck, 2002; Senese, 2002; Tidwell, 2002); reframing and change in teacher education (Guilfoyle et al., 1995; Hamilton, 1998); diversity, democratic or social justice issues (Fecho, Commeyras, Bauer, & Font, 2000; Ladson-Billings, 2000; Sandretto et al., 2003); as well as teacher education generally, including student teacher supervision (Beck & Kosnik, 2000; Dinkleman, 2003; Feldman, 2003; Montecinos et al., 2002).

### **3.4 Self-study: powerful instrument to transform teacher education**

As previously identified within the literature review, the ubiquitous claim that teacher education makes little difference may be one reason why self-study has been particularly popular in the field of teacher education. Here it tends to focus

on an intention to develop a better understanding of particular pedagogical situations within initial teacher education experiences, motivated by a “growing recognition that teacher education programs do not fully prepare beginning teachers for the rigours of school teaching” (Loughran, 2001, p. 1). Valuing self study’s potential for articulating, examining and redefining principles which guide teaching leads LaBoskey to claim that “Self-study has allowed me to learn much from my practice that I could not have learned otherwise. . . . It has convinced me that self-study is the most powerful instrument available to us in our efforts to transform teacher education” (in Hamilton, LaBoskey, Loughran, Russell, 1998, pp. 5-6).

### **3.5 Continuing challenges and possible contradictions**

Studying one’s own practice brings together two approaches to knowledge construction: the tacit knowledge which is generated as a result of personal experience and that generated by those who research teaching and make their knowing public. Since the one whose tacit knowledge is the basis for the practice at the focus of the inquiry is also the one researching the practice, such a claim presents problems for those who require research to be undertaken from a ‘disinterested’ perspective. One possible answer to this apparent methodological dilemma encourages those involved in self-study to move their focus from improving conditions of practice to “how we come to think of a particular ‘problem’ and its ‘solution’ ” (McWilliam, 2004, p. 122), a suggestion which meshes well with self-study’s commitment to understanding and meaning-making and which may go some distance to counter self-study’s apparent acceptance of the status quo as unproblematic. While early literature suggests that understanding one’s practice is sufficient with minimal attention to the ‘situatedness’ of the practice, some of the more recent literature (e.g., the 2004 publication, *International handbook of self-study of teaching and teacher education practices* edited by Loughran, Hamilton, LaBoskey, & Russell) draws attention to the taken-for-granted practices within the teacher educator’s day-to-day teaching practices, suggesting that they also require thorough examination. However, an increased focus would be beneficial as Clift (2004) notes that “although programs, courses, and participants are embedded within political, social, and historical contexts, current self-study researchers most often focus only on the individual and her/his

students, thus diminishing the potential for wider relevance of the research” (p. 1334). The emphasis on reflective inquiry within self-study is “critical to revealing the hidden knowledge of both teaching and nursing” (Drevdahl et al., 2002, p. 415) – as per Schön “making intuitive and unconscious knowing and meaning visible”. The placement of this study within a critical reflexive interpretive methodology, discussed in the following section, is, in part, necessary to strengthen this focus on the contexts of the teacher educator’s work, particularly with respect to influential institutional constraints.

A requirement to render the very familiar landscape of practice as *unfamiliar* in order to “create the sort of ‘disinterested’ epistemological conditions” (McWilliam, 2004, p. 122) seen to be necessary for acceptable research is like asking the proverbial fish to notice the water in which it swims. Such an approach does not recognise how problematic this is, and how nigh impossible it is to fully disengage with the familiar context, the status quo, in which one lives, works and studies.

#### **4. From Self-Study to Critical Reflexive Interpretive Methodology**

One reason why self study was an appropriate starting point for the study is a recognition that the research question at its heart is the type of question self study researchers ask. Such questions arise from:

concern about and interest in the interaction of the self as teacher educator, in context, over time, with others whose interests represent a shared commitment to the development and nurturance of the young and the impact of that interaction on self and other (Hamilton, 1998). (Bullough & Pinnegar, 2001, p. 15)

and,

The questions self-study researchers ask arise from concern about and interest in the interaction of the self-as-teacher educator, in context, over time, with others whose interest represent a shared commitment to the development and nurturance of the young and the impact of that interaction on self and other (Hamilton, 1998). Ultimately the aim of self-study research is moral, to gain understanding necessary to make that interaction increasingly educative. (Bullough & Pinnegar, 2001, p. 15)

Another reason which supported the choice of self study as an appropriate starting point for this study is its close link with the process of reflection. Both self study and reflection share an intention of “developing a better understanding of particular

pedagogical situations” (Loughran, in Hamilton, LaBoskey, Loughran & Russell, 1998, p. 1).

However, when faced with the pre-service teachers’ responses to my teaching, self study in and of itself as represented in the literature within the earlier section of this chapter was not sufficient. My initial intention to utilise a self study approach tended to perpetuate what Smyth refers to as “*a value consensus that stability is the natural order of things and goals are shared and unproblematic*” (1992, p. 272). This is where an empirical view of experience is problematic, given its tendency to make one uncritical towards one’s own experience and towards one’s own concept of experience: “It treats experience as self authenticating and the concept of experience as self-explanatory. It does not recognise that what we experience is determined not just by what is there, but by what we have already learned” (Collier, 1994, p. 72). Experience, in fact, can confirm our prejudices, since we may see what we have been taught to see.

Rather than a linear process that seeks causal determination and prediction, ***critical reflective interpretation*** requires a process that seeks critical reflection about both the illumination and understanding of all phases – describing the experience, enquiring into that experience as well as of the examination of that enquiry and interpretation process itself. By doing so, the researcher is provided with “a set of epistemological relationships” which in turn influence the purpose, process and product of research (Kuzmic, 2002, p. 224). Where the focus for research considers practice, such a view of knowledge is critical in order to not bypass the “problem solving processes that sustain practices which researchers may seek to alter” (Robinson, 1998, p. 17).

Consequently, methodological choices are informed by the unfolding nature of the investigation which raised further questions about reflection and factors which influence pre-service teachers’ engagement with the reflective process. Gordon (cited in Kuzmic, 2002) used the word *hauntings* as a metaphor to refer to issues, questions, a participant’s comment and experiences within a study that are disturbing, unsettling or problematic and therefore need attention. Such a metaphor is most appropriate as a description for the influence some pre-service teachers’

responses to experiences provided within the researcher's teaching and research experience within this study. Such 'hauntings' necessitated a broadening of the methodology from a self-study to what I have referred to above as *critical reflexive interpretation*.

### **5. Developing an alternative: Critical reflexive framework**

In searching for authenticity, this study requires that I have the psychological courage to maintain a priority for ideas which surface within the study and make methodological choices in the light of appropriateness to reflectively pursue such ideas, rather than being constrained by an inflexible research design. In the light of such a requirement, this section outlines characteristics of *critical reflexive interpretation* as a methodological framework which will enable such flexibility to follow the leads identified within the study. While at this point in the chapter, critical reflexive interpretation is presented as a coherent framework, this was not always the case. Rather it has developed through the recursive, reciprocal and iterative process which itself is the study.

An alternative is to embed the self-study process within a critical, reflexive framework, which views all aspects of the research process as interpretation and submits both the process and its subsequent interpretation to critical reflexive inquiry. Such an approach enables the study to maintain a sense of "complication or tension" and not seek resolution. Education is by nature ambivalent and ambiguous in character and to the extent that our work more adequately reflects this, "it may become more persuasive and more relevant, and perhaps as it does, it may also become more conceptually accessible" (Kennedy, 1997, p. 10).

While the fact that prior experiences are 'investigated' within the educator's work and context is presented as an important facet of self study (Hamilton & Pinnegar, 2000; Whitehead, 1993), the tendency to accept experience itself as unproblematic means that self-study research appears not to give enough attention to examining the constraints and beliefs which support and sustain existing practice, or even make a particular practice meaningful. In fact, in the process of comparing a range of peer-reviewed self-studies, Clift (2004, p. 1333) concludes: "Indeed constraints on teacher education or forces that shape teaching within teacher education are

noticeably absent from the research.” Experience is not easily accessed and may in fact confirm our own prejudices since we may see what we have learnt, or hope, to see. Understanding what is being experienced not only involves targeting, rather than ignoring, the assumptions, beliefs and values which sustain such experience, but also submitting the enquiry into that experience to examination.

### **5.1 Critical reflexive interpretation: Meaning making**

This framework is founded on a view of research as interpretation (Kincheloe & McLaren, 2003; Williams, 2003) and honours concepts such as understanding, meaning and action (Carr & Kemmis, 1986) rather than causal determination, prediction or generalisation (Patton, 1990). As such, it relies on “inductive logic of concept construction rather than deductive theory testing” (Williams, 2003, p. 59) and seeks, through the process of critical reflexive interpretation to make sense of the collected data in a way which communicates understanding of ‘the hidden wholeness’ (Parker, 1998, p. 61); that is, telling the story in a way that preserves (and critiques) the contextual dynamics and paradoxes. In this section, discussion of each component of the framework follows: research as interpretation, followed by a description of what is meant by reflexivity, and finally the need for a framework which is critical in nature.

#### *5.2.1 Research as interpretation*

All researchers are philosophers (Denzin & Lincoln, 2003) in the sense that they, and therefore their work, are guided by ‘highly abstract principles’ (Bateson, 1972), which combine beliefs about key worldview questions. Simply put, how one approaches research reflects one’s particular worldview or paradigm (Hamilton, 2002; Mowry, 1992). When research is seen as the process of interpretation, then most pertinent are the ontological (pertaining to being) and epistemological (pertaining to knowing) questions (Freire, 1985; Schwandt, 2000). Answers to these questions reveal the researcher’s assumptions about the nature of the world, the human beings involved in the study, as well as about how we learn and come to know (Mowry, 1992).

With reference to the ontological question, “What is real?” this study is framed within a response which recognises that an external world exists and that this world

has a knowable structure which is not reducible. The notion of irreducibility is critical in that, on the one hand, it provides for an authentic dealing with the complexities found within the teaching/learning relationship, without on the other hand reducing them in a positivistic, atomistic manner, or ignoring the complexity, as in a constructivist reliance on collectivism. Language that tends to bipolarize or represent the world in either/or extremes leaves nothing to mediate, no meaning to attribute and is “little use in reflective thinking or practice” (Brunner, 1994, p. 55). This tendency to think in polarities elevates disconnection as a virtue and is so embedded in western thought and scholarship that it is difficult to escape.

However, within the methodological framework adopted for this study, it is deemed important to escape “thinking the world apart” (Palmer, 1998, p. 62), for such gives a fragmented sense of reality and tends to a simplicity which is misleading. “Dissecting a living paradox has the same impact on our intellectual, emotional or spiritual well-being as the decision to breathe in without ever breathing out would have on our physical health” (Palmer, 1998, p. 65). The methodological framework for this study thus invites the researcher to “think the world together” (Palmer, 1998, p. 62) and in doing so, to hold multiple perspectives at one time (Brunner, 1994). To embrace such paradox is an important aspect of recognising research as interpretation and, in the light of a held view that knowledge cannot be separated from the knower, the reflexive nature of this study.

The focus of this study is on understanding the participants’ experiences of reflective, active engagement during their initial teacher education programme, the context of the study. For each participant their experience in and of the world is not of an objective, distant nature but rather integral to their being. Interpreting the world is what human beings do as they seek to live with purpose and meaning. Consequently, individual experiences are not seen as objective snap shots of events, but rather as interpretations and constructions in the process of meaning making, a process holistically connected with who they are. Consequently in considering experience, one considers one’s very personhood. This experience becomes a valuable source of knowledge (Eisner, 1988; Mowry, 1992). However, this is not the same as saying that one’s knowledge is so personal and situationally specific that it cannot be defined or held to account (Furlong, 2000; Schön, 1983). The researcher and participants within the research select and construct experiences

in the light of their ‘worldview’ filter. For this reason it is believed that all research is interpretive (Alvesson & Sköldbberg, 2000; Woods, 1992).

The epistemological question, “How do we know?” addresses one’s beliefs about both the process of knowing and the product of knowledge. It focuses on the way we name culture and its related activity around us (Kincheloe & McLaren, 2003). The external world is deemed to possess a ‘knowable structure’ which, while not transparent to us, “can be made to yield up its secrets” (Collier, 1994, p. 22). This notion of secrets being ‘yielded up’ is held as important for this study for two reasons.

One, it provides the possibility of differently sourced knowledge – including intuition or what some may call, revelation. Such a view is to be kept in mind in a study which focuses on reflective thought and which at times may appear to marginalise or even negate intuitive knowledge. Second, it provides for research which discovers, rather than creates knowledge. While such structure is seen to exist whether it is known to us or not, it is possible that our knowledge or interpretation is fallible and therefore it is to be held lightly and always open to further perspectives and other interpretations. A view of knowledge as implicated and embedded, supported by underlying structures which themselves endure longer than appearances, and which generate or lead to personalised knowledge, is helpful in research which seeks to understand practice as embodied knowledge, that is, knowledge expressed through action.

### *5.2.2 Critical reflexive interpretation: Being reflexive*

Key to the methodological design for a study which seeks ‘meaning making’ is to value reflection, not as a “straitjacket on the social world” (Bryman, 2004, p. 271) but as a “way of knowing” (Kuzmic, 2002, p. 231). This way forward requires the researcher to be open, and given the propensity to bias and privilege, submit that openness to examination so that even the assumptions which frame the processes of observation, interpretation and analysis, are themselves engaged and subjected to critique.

As indicated in Chapter Two, the word *reflection* has almost as many meanings as the number of people who write or speak of it and consequently it was important to develop and provide a specific definition for this study. The definition provided has much in common with the idea of reflexivity. According to Smyth and



Shacklock (1998, p. 6), “reflexivity in research is built on an acknowledgement of the ideological and historical power dominant forms of inquiry exert over the researcher and the researched”. Within this framework, reflexivity is to the research process what critical is to assumptions underpinning ideologies and taken-for-granted thinking. The notion of reflexivity is present in two dimensions. The first is required in research accounts and relates to the researcher deliberately and intentionally making her decision-making within the study open for critique. Rather than “futile attempts to eliminate the effects of the researcher, we should set about to understand them” (Hammersley & Atkinson, 1995, p. 18). A reflexive approach to research as interpretation recognises the impact of the researcher, as an emotional, cognitive, spiritual, physical, and relational human being, on the intentions, processes and outcomes of the research, without the paradoxical split of heart from head, feelings from thoughts. Consequently, the second reflexive dimension does not appear so common. As I identified elsewhere:

expectations of research methodology were of a linear approach - clean, predictable and sequential. However, what was discovered was a dynamic, complex and apparently unpredictable reality. A search for authenticity required a methodology that would overcome the barriers my expectations of a linear framework presented. (Norsworthy, 2005a, p. 1)

This view of research as clean, predictable and sequential assumes more than is possible – that one may know and interpret the data with accuracy and authenticity – but, interpretation-free, theory-neutral acts do not exist and settings within which research occurs are themselves complex, political, social and economic milieu.

‘Data’ and ‘facts’ are the constructions or results of interpretation. Such knowledge cannot be separated from the knower. With the words reflexive, reflexively, or reflexivity, reference is often made to the process of bending back on self and looking more deeply at interactions (Alvesson & Skoldberg, 2000; Kincheloe & McLaren, 2003). Such bending back in a study such as this relates to self, both as researcher and researched. Consequently, a reflexive approach to inquiry means interpreting one’s own interpretations, looking at one’s own perspectives from other perspectives, and “turning a self-critical eye into one’s own authority as interpreter and author” (Alvesson & Skoldberg, 2000, p. vii).

With its commitment to authenticity, reflexivity means that as the researcher, I do not ignore the difficulties of working relationally with other human beings, or

indeed with the research process itself, within the research setting. For example, existing commitments in place prior to the study's commencement, or my own naivety of and inexperience with a research process of this character, often presented dilemmas and tensions. Also to be considered in a study aiming for authenticity is the question, "To what extent does the research process force reality into a pre-designed framework?" Reflexive inquiry does not ignore these dilemmas but brings the researcher's struggle with the epistemological, methodological and political issues inherent in critical qualitative research into the open, giving expression to the researcher's inner dialogue (Smyth & Shacklock, 1998) and viewing the struggle itself as a relevant and important contributor to the study.

Consequently, rather than tidy up some of the messiness of such interactions, reflexive inquiry keeps these public. For this reason it is a particularly vulnerable endeavour. The reflexive researcher requires much psychological courage to recognise and transform the constraints implicit in his or her own expectations of the research process and needs to resist the apparent safety of a technical approach to research, having both the humility and courage to live with uncertainty.

### *5.2.3 Critical reflexive interpretation: Being critical*

The framework for this study is critical because it goes beyond the discovery of meaning in that it examines the interpretive act for the assumptions which sustain or enable it. The 'critical' in *critical reflexive interpretation* identifies a particular approach to research which entails reflection on the premises, concepts and categories in all aspects of the study – data collection, interpretation and reporting. To be critical, according to Cox, is to "stand apart from the prevailing order of the world and ask how that order came about" (1981, p. 129). Consequently, the methodological framework recognises that many of the reasons underpinning our actions are not so much the result of conscious choice, but rather, they are shaped by the constraints contained in a social structure or process over which participants have little, if any, direct control (Carr & Kemmis, 1986): "Phenomena are not considered to stand on their own but are implicated, embedded and located in wider contexts that are not entirely innocent" (Smyth & Shacklock, 1998, p. 3). Alvesson and Sköldberg's reasons for not regarding empirical material "as the whole truth, or as a decisive path to knowledge" (2000, p. 134) include the fact that any capture of

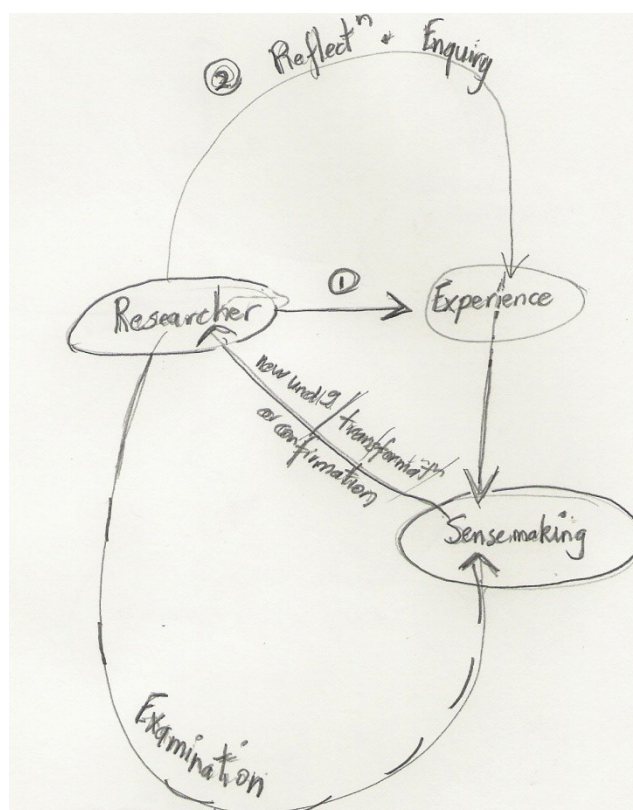
data or insight is only a fragment, and may not capture the context within which that snippet occurs. Related to this is the possibility that such data may not identify the social conditions, ideologies and communicative processes which are operating in unexplored assumptions. Therefore, the results of interviews and questionnaires may be ambiguous at least and may in fact be erroneous and therefore, demand critical consideration rather than blithe acceptance.

As critical inquirers, we search for those forces that by stealth shape who we are, and therefore indirectly how we act. Gramsci's (1971) notion of hegemony reminds us that particular cultural agents produce particular ways of seeing and consequently determine what is valued as knowledge. A commitment to being critical requires of the researcher that she keep her process of interpretation open to critique and examination, seeking understanding of the agents and experiences which shape and inform both data and its interpretation. Wolcott (1992, p. 19) identifies and describes three categories of data gathering techniques: experiencing, enquiring and examining. By changing his categories from data gathering techniques to categories of knowing and processing, I found a sense of hope for what I trust leads to an increased level of authenticity. For Wolcott, *experiencing* referred to data collected through the senses, particularly through watching and listening. However, in changing from a data collection tool to a focus of inquiry, *experience* becomes the initial starting point –the multifaceted student teacher or teacher educator's daily work. The world of experience includes thoughts and feelings which arise out of past experiences (with learning, the particular subject, the staff member), institutional expectations, spoken and unspoken, and relationships with peers and staff. For Wolcott, *enquiring* provided for the researcher a role more intrusive than that of a "mere observer" (1992, p. 19). *Enquiry* then became the process of placing that experience with its assumptions in the public arena and asking hard questions of that experience. The researcher reflects on and inquires into that experience. As ideas or 'hauntings' surface from the enquiry, the related literature may be referenced in order to bring further understanding or clarity. Finally, for Wolcott (1992), the process of *examining* involved making use of the materials others had prepared. In my model this process of examining encapsulates the change in methodology. The sense making process itself is examined. *Examination* focuses on identification, critical

evaluation and investigation into both the assumptions underpinning, and, the process of enquiry itself. This examining may be likened to Smyth's interrogative research. The kind of interrogation he has in mind is "of contexts and dominant discourses that envelope the everyday lives and experiences of teachers, and that are held in place by hegemonic ideologies, paradigms and worldviews" (1999, p. 76). The status quo by its very nature often eludes critique and examination. It is so comfortable there - like the air we breathe, and yet its comfort and familiarity are themselves traps for the researcher. As Hull noted:

The status quo paradigm in education makes the rules and sets the standards by which all innovations- and the new paradigm they propose - are judged: this principle greatly inhibits paradigm shifts, which by definition establish new boundaries and rules. (2003, p. 216)

Figure 2 below captures something of the methodological process within the critical reflexive interpretation framework, as influenced by Wolcott (1992) and developed within this study.



**Figure 2: Methodological sense-making**

For example, it is held that pre-service teachers' behaviour makes sense to them and so the critical endeavour seeks out the thinking processes, assumptions and situations which sustained such behaviour or response. An approach to research

which claims to be critical and/or interpretive needs “to be rooted in the self understandings of educational practitioners” (Carr & Kemmis, 1986, p. 129). However, research such as this is not limited to collecting these ‘self understandings’ but also is a tool to develop these.

Consequently, critical reflexive interpretation provides a framework within which methodological choices can be made in order to respond to the ideas and interpretive challenges which arise throughout the study. A search for objectivity is replaced by the aim of authenticity. Instead of viewing the subjectivity of the researcher as problematic, it set about to understand both the researcher and the biases which shaped her interpretation.

## **6. The Study**

To this end, the study’s methodological approach is founded on a critical, reflexive view of research as interpretation and it is within this framework that the self study is framed. What has been critical in this journey is to recognise the need to engage the constraints within the status quo, “systematically articulating the subjective-meaning structures governing the ways in which typical individuals act in typical situations” (Carr & Kemmis, 1986, p. 91). Focusing on what is going on, rather than what one hopes is going on, and bringing into the open the ways in which people within a situation make sense of what they are doing, may, when critiqued by the intentions and hopes within the educational vision which initially inspired the activity, influence practice by influencing the ways in which individual practitioners comprehend themselves and their situation. As outlined by Schwandt (2000, p. 190), “social inquiry is a distinctive praxis, a kind of activity (like teaching) that in the doing transforms the very theory and aims that guide it”. In fact more than transforming the theory and aims, it changes one’s view of self and the setting in which we live out our work (Renner, 2001).

In this journey, a repeated critical reflexive ‘interactional dynamic’ between *experience*, *enquiry* and *examination* appears to provide an increased awareness of the powerful influences of the status quo: past learning and beliefs, institutional expectations and practices. The developed framework holds potential for the

building of integrity and authenticity because of a greater degree of alignment between focus and process, allowing the symbiotic relationship between these two to be seen. Hence figures 3 and 4 reflect the development of a methodological framework. Figure 3, on the next page, was developed during the study, and taken from my working notebook. It is to be understood like the expanding nature of the famous *Russian Dolls*; as it reflects and engages the implicated and embedded nature of the experiences at the heart of this study. On the other hand figure 4, on page 97 was developed at the end of the study and captures the methodological journey as experienced within the study.



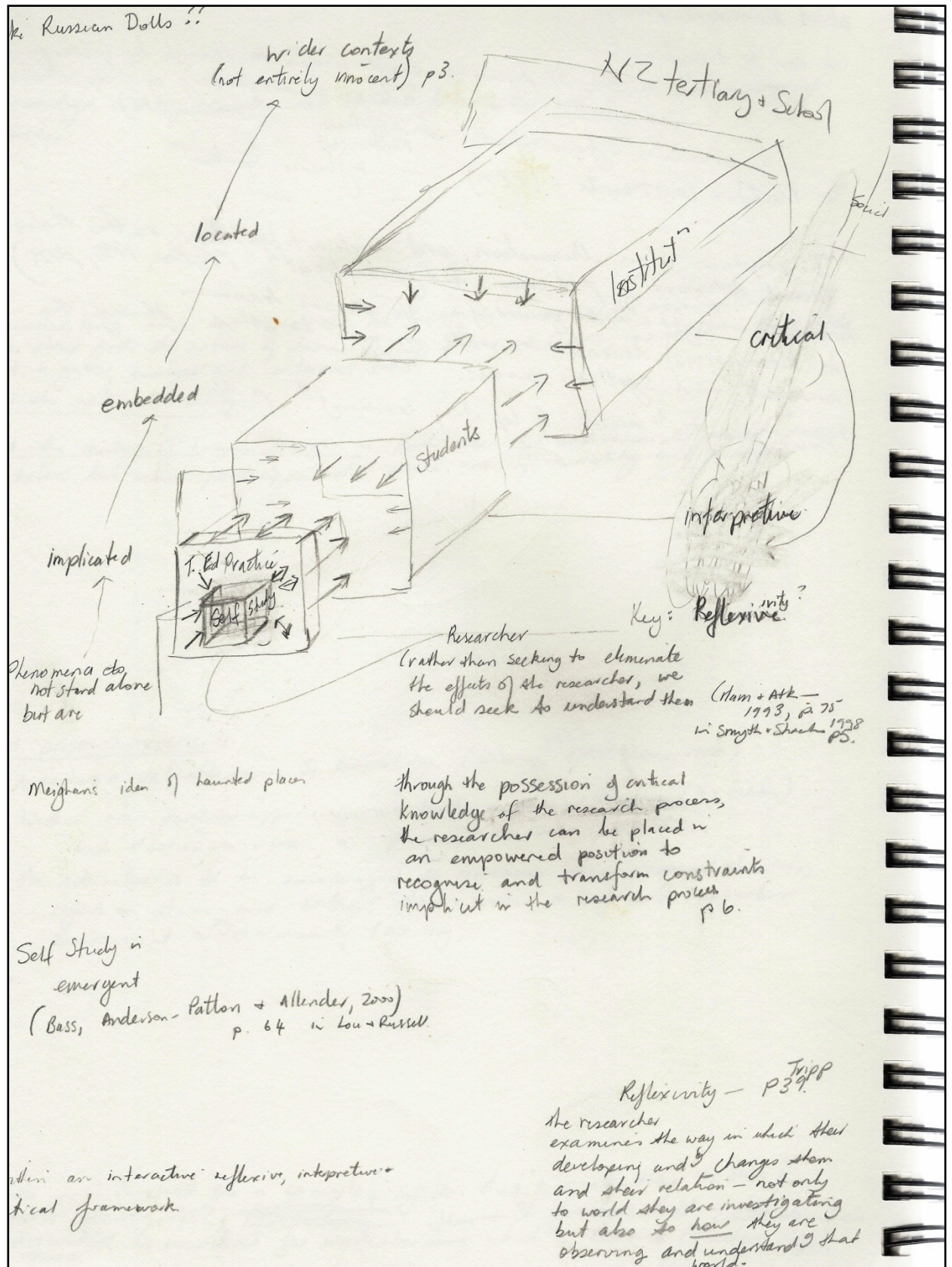
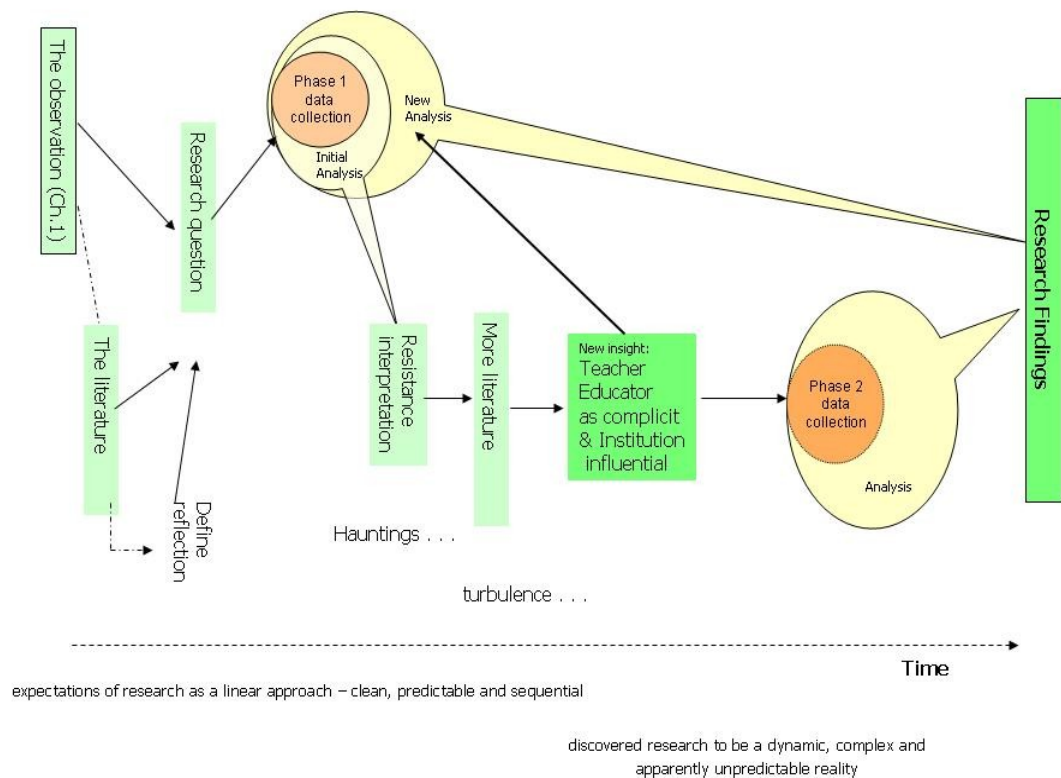


Figure 3: Implicated and embedded



**Figure 4: Research design journey**

### *Questions of Validity*

Questions of validity tend to focus on factors which ensure that the inquiry process continues to be disciplined and systematic; open to scrutiny and critique. However, there are also those who recognise that validity is 'multiple, partial, endlessly deferred' (Lather, 1993, p. 697). As suggested by Manke (2002, p. 1), when studying one's own work and therefore life, the researcher "... is sure to be unaware of what is missing, what has been ignored or overlooked, what has not yet been seen or understood".

As indicated earlier, within self-study the concept of validity is based on the notion of trustworthiness or believability (Clift, 2004; Hamilton & Pinnegar, 2000; LaBoskey, 2004; Lincoln & Guba, 1985; Mishler, 1990). Feldman (2003) suggests that one way in which a study's validity may be increased is by paying attention to, and making public, the way that its representation is constructed.



This means that public reporting should “ring true and enable connection” (Bullough & Pinnegar, 2001, p. 16) with others working in the same field. Publication and conference presentation have been ways such authenticity, believability and connection have been tested throughout the duration of the study. The review process associated with conference presentations or article publication associated with this study, and feedback from such so far, has affirmed that both methodologically and conceptually there is a sense of authenticity and connection within the study. However, the final test resides in whether those involved in teacher education evaluate the “findings as sufficiently trustworthy to rely on them for their own work” (Mishler, 1990, p. 417).

## **7. Summary**

This chapter has noted the increasing occurrence of practitioner-led research and, subsequently, the development of self-study within teacher education. The initial intention to undertake a self-study required engagement with the literature which makes a case for its acceptance as an alternative research methodology. The chapter also reports the challenges and problems with self-study which unfolded as the study progressed. A critical reflexive interpretive framework was developed and this has been described. Finally, the chapter considers notions of validity for a study of this nature. Chapter Four now presents the second of Wolcott’s (1992) dual facets found in all research: the inquiry procedures used to conduct the study

## Chapter Four

### Methodology: Methods

#### 1. Introduction

Building on the methodological discussion in Chapter Three, this chapter proceeds to elaborate on the actual methods and procedures used to conduct the research.

First, the chapter presents the different tools and techniques utilised in the two phases of the data collection process. Second, the strengths and weakness of the variety of data collection tools are reported. Ethical considerations and associated strengths and limitations follow. Reporting of the data analysis process and its associated limitations draw the chapter to a close and lead into Chapters Five and Six which present the study's findings.

#### 2. Data Collection

Data were collected from pre-service teachers and teacher educators at a small teacher educator provider, referred to as Clearwater Institute.

In keeping with the iterative nature of the study, data collection occurred in phases, like waves, and included at key points undertaking bounded forays into related literature to provide further understanding or critique of analysis and interpretation (see Fig 6 in Chapter Three). The phases of data collection moved from being focused on experiences within the *Teaching of Science* methods paper, to the context of that experience – the teacher education institution, including pre-service teachers' entire course of study, and were inspired by 'hauntings' from within the study.

### **2.1 Data Collection - Phase One:**

Two cohorts of pre-service teachers who enrolled in the Teaching of Science paper were asked to release material from within the course for the process of contributing to the study. 44 Year Two students ranging in age from 17 – 45 undertook the course. This material included:

- Pre-course questionnaires (Appendix B)
- Gestalt task
- Reflective emails (guided by an adaption of Hoban's (2000a, Appendix C) categories of learning influence
- Meta-reflections at end of course

Also during this phase, two year three students (not enrolled in the *Teaching of Science* paper) participated in interviews during their final practicum focusing on what influenced them in their day-to-day planning. See Appendix D (Consent for Interview) and Appendix E (Interview questions).

During this phase, and particularly in those 'haunting' times, I also kept a reflective journal which included: reflective jottings, journaling, diagrams and notes from meetings with the Associate Dean related to the *Teaching of Science* course. At the time this project commenced, the Associate Dean was responsible for monitoring the quality and satisfaction of Clearwater Institute's students' experiences, and was also my appraiser.

### **2.2 Data Collection - Phase Two:**

During phase two, data collection focussed on pre-service teachers' entire course of study at Clearwater Institute and institutional influences and factors within which pre-service teachers' development as reflective practitioners was embedded. This data was collected using a data collection tool that included both an authentic vignette and a three-part questionnaire (see Appendix F) – the design of which is innovative and interesting. This data collection tool focuses on the way in which Clearwater Institute's commitment to the development of reflective practitioners is understood and experienced by its learning community. The language used throughout this tool is deliberately invitational and honouring of the other's voice.

The wide variety of questions and approaches to data collection within the questionnaire generated a wealth of responses.

*The authentic vignette*

A vignette, when used as a data collection tool, typically presents participants with a scenario and invites them to indicate a personal response to that scenario (Bryman, 2004; Jeffries & Maeder, 2006). Often such scenarios may be fictitious “narrative descriptions that contain a set of realistic assumptions and facts about the future used to provide a unified context for decision making” (Jeffries & Maeder, 2006, p. 1). They can be used as “a tool to model, teach and research behaviour and understanding” (ibid, p. 2). Vignettes are characterised by being short stories, fewer than 200 words, simplify a real life situation that is purposely incomplete, and when used for instruction or assessment include a scoring rubric (Jeffries & Maeder, 2006; Martin, 2006). The vignette used in the study reads as follows:

Recently [*Name of Institute*] was approached to provide a lecturer to speak to a visiting group of high ranking Singaporean educationalists. In Singapore there has recently been a mandated change in the dominant approach to teaching - from a transmissive style to a more active learning style. The idea was that one of the [*Name of Institute*] staff members would speak to this prestigious group for a about 15 – 20 minutes about “*What we do here at [Name of Institute] to ensure that the teachers who graduate from this place are able to involve students in active learning and to develop innovative thinking?*”

In seeking to answer this question, I thought – as staff we know what we think we do, but the students will know what this experience is like for them, ie what we actually do, and how this works for them. So I posed the question to one or two of your year group (like a pilot study) and was very encouraged with the depth of thought and perceptiveness within the responses which came back to me without a moment’s hesitation.

Consequently I invite you to respond to the question as well.

“What do we do here at [*Name of Institute*] to equip and prepare you to be able to develop innovative thinking, and to involve the students you teach in active learning?”

Raw data from this tool is referenced (V, 2003), or (V, 2004) for pre-service teachers and (TE, V) for teacher educator responses.

*The questionnaire*

After the vignette, the questionnaire has three distinct sections as follows:

- The first focused on exploring pre-service teachers *understanding of* Clearwater Institute's institutional commitment to developing graduates who are *reflective practitioners*. Within this section, participants were involved with:
  - open and closed questions related to the concepts of reflection and reflective practitioners
  - assessment of self as a reflective practitioner
  - likert scale responses related to the importance of a range of attitudes, contexts or models which enable participation in reflection which is likely to leads to changed practice. Four options (extremely important, moderately important, slightly important and not important at all) were provided to require participants to opt for either an important (extremely or moderately) or less important (slightly, not at all) option. In keeping with good practice, options are mirror opposites.
  - likert scale responses to indicate the degree to which a style of assessment task made a helpful contribution to the development of a reflective practitioner. As above, four options were provided.
  - open ended invitation to describe characteristics of assignments which definitely would encourage personal growth as a reflective practitioner.
- The second section focused on exploring pre-service teachers *experience with* Clearwater Institute's institutional commitment to developing graduates who are *reflective practitioners*. This section also included a range of approaches to collect data as follows:
  - open ended invitational questions related to aspects of course work in terms of helping or hindering development as a reflective practitioner
  - likert style responses to contributions made to this development by particular courses in terms of overall experience, course content, lecturer's approach and assessment tasks. A free response opportunity invited pre-service teachers to describe key components or particular attribute of each course.
- The final section focused on pre-service teachers' self knowledge and included:

- likert responses in terms of agreement with a statement. Once again four options (mirror opposites) were provided (definitely agree, agree with reservation, disagree with reservation, definitely disagree).
- open ended invitational questions in which pre-service teachers could describe changes to themselves as learners over the three years of their teacher preparation.

Raw data from this tool is referenced (FQ, 2003), or (FQ, 2004) for pre-service teachers and (FQ, TE) for teacher educator responses.

#### *2.2.1 Data from pre-service teachers*

At the end of 2003, of the available 44 students who, as Year Two students had contributed to the study through the *Teaching of Science* paper but had since completed their three year Bachelor of Education (Teaching) programme, 29 completed the questionnaire. A small mid-year intake of students had participated in many of the same courses as those who completed the questionnaire at the end of 2003. In 2004, these students were also invited to complete a shortened version of this questionnaire at the end of their programme. Of the available 14 students, 11 completed the questionnaire.

#### *2.2.2 Data from teacher educators*

At the end of 2003, all thirteen teacher educators (10 full time and 3 part time) were invited to complete a questionnaire similar in design to that which the pre-service teachers completed. Nine (69%) agreed to do so. (see Appendix G).

### **2.3 Summary of data collected**

Tables 3 and 4 on the following page summarise the data collection within the two phases and indicate the number of actual participants at each point.

## Phase One: Teaching of Science:

	<b>February cohort</b>	<b>July cohort</b>	<b>Total</b>
Pre-course questionnaire (PQ)	19	20	39
Gestalt activity (GA)	17	8	25
Course email reflections (ER)	14	15	29
Course meta reflections (MR)	14	15	29
Response to assignment feedback (AF)			5
Interviews with Year Three students during final practicum (I)			2
Informal conversations (face to face and email) (IC)			

**Table 3: Phase one data collection**

## Phase Two: The broader pre-service context

	<b>Total</b>
Vignette (V, 2003)	28
Vignette (V, 2004)	10
Vignette (V, TE)	9
Pre-service teacher questionnaire (FQ, 2003)	29
Pre-service teacher questionnaire (FQ, 2004)	11
Teacher educator questionnaire (FQ, TE)	9
Semi-informal conversations to test initial findings (audio-taped)	2
Personal Journal Entries (PSJ)	
Institutional documents (ID)	

**Table 4: Phase two data collection****2.4 Strengths and weaknesses of data collection tools**

The following section reports strengths and weaknesses related to the variety of tools used to collect the data within the study. As indicated above these included: the gestalt-like activity, the vignette, the questionnaire and the use of materials generated within the *Teaching of Science* paper (meta reflections, emails, conversations, and my own journal entries)

*Gestalt-like activity*

The Gestalt-like activity was chosen for the fact that it provides for spontaneous expression of both feelings and perceptions in a manner which honoured the “complex and multiperspectival world which human beings inhabit” (Walsh, 1996, p. 383). This indeed is shown to some degree by the way students used bold, capital or emphasised letters and the way ideas were grouped. The concept of gestalt “is closely related to the holistic approach and proposed that knowledge about a particular phenomenon be organised into a cluster of linked ideas” (Ross, 1999, p. 1). It is an example of what Frank (1948) termed a ‘projective technique’ for its potential to provide observable representations of what was otherwise unobservable cognitive activity. He defined a projective technique as “a method of studying the personality by confronting the subject with a situation to which he will respond according to what the situation means to him and how he feels when so responding” (Frank, 1948, p. 46). While it appears that projective techniques are common in market and advertising research, some forms such as drawing, sentence completion, ordering of pictures or words and word associations have been used in educational research. For example, Finson (2002) presented common findings from research since 1957 in which participants draw their perception of a scientist. More recently, Grootenboer (2003) studied pre-service teachers’ affective development in mathematics, in part, through their drawings of mathematics teachers. In arguing for the use of mind mapping in research Marsden (2002) used word associations in research related to healthy living. With reference to literature spanning from 1880 until 2000, he noted:

That meaning is made out of associations in the mind, and that this meaning can be unpacked by associative research techniques such as word association, is an established insight not only in market research but one that runs through philosophy, psychology and linguistics. (p. 224)

Within a positivist epistemological framework such a technique was deemed to have weak reliability and validity (Lilienfeld, 1999). However, more recently they have been valued for their ability to invite participants to give expression to “thoughts and feelings which can be difficult to access by direct and structured questioning” (Catterall & Ibbotson, 2000, p. 245). It is not that questions are difficult to answer but more that they limit the scope of response. A gestalt-like task such as used in this study provides a non-linear possibility of capturing participants’ insights which may not have been understood or valued by the researcher.



Early use of projective techniques was criticised on ethical grounds, given the claim that such use gave researchers access to unconsciously held knowledge through disguised pathways. Current ethics approval processes require that participants are fully informed in relationship to both the data collection process and the use of that data. The interpretive researcher is also more likely to argue that it is to her advantage to gain participants' co-operation and informed participation (e.g., Bergman & Feiring, 1997; Cohen & Manion, 1994; Herbert, 2000). Within qualitative research, issues of validity and reliability are therefore considered in terms of "being 'meaning - adequate' (retaining the meanings of those researched) and consistent, where expected with the findings of previous or subsequent similar analyses . . . ." (Marsden, 2002, p. 226).

#### *The vignette*

Vignettes have been used as teaching tools in science teacher education (e. g., Veal, 2002) and as data collection tools in qualitative research (e.g., Gould, 1996; Lieberman, 1987; Miles, 1987; Veal, 2002). The advantage of a vignette over an open-ended question is that the participant's response is in response to a story which is believable but not necessarily experienced. Normally, "considerable effort needs to be invested into the construction of a credible situation" (Bryman, 2004, p. 159). However, the credibility of this situation is found in its most important characteristic: this vignette was authentic. It actually happened. It is most probable that participants observed or were aware of the Singaporean visitors on campus. In fact, it was the depth of understanding demonstrated by the pre-service teachers to whom I talked that encouraged its use within the study. There are substantial advantages associated with the use of vignettes as research tools (Gould, 1996; Veal, 2002). As for self-completed questionnaires, vignettes enable collection of information simultaneously from large numbers of participants. Most relevant to this study is the absence of observer effect.

Weaknesses associated with the use of vignettes are similar to those associated with gestalt-like activities above in relation to establishing reliability and validity when working in a positivistic paradigm. However, as Wilks (2004) indicated outside a positivistic paradigm, questions about validity are understood in terms of the degree

to which the vignette approximates reality and is meaningful to participants. The vignette used within this study satisfies both of these criteria.

### *Questionnaires*

The use of self completed questionnaires within qualitative research is well established. Characteristics of effective components within such data collection tools are well documented (e.g., Bryman, 2004; Burns, 2000; Cohen & Manion, 1994). Advantages such as minimum cost, ensuring each participant receives the same instructions, lack of time restraint, availability, and reducing errors from unclear audio recordings are appreciated. However, a critical advantage to the use of questionnaires within this study relates to reducing the influence of the researcher/interviewer. In this study, pre-service teacher participants' relationship with the researcher is one complicated by the role they have as lecturer. As Burns noted, "Another advantage is that a questionnaire that can guarantee confidentiality may elicit more truthful responses than would be obtained with a personal interview" (2000, p. 581). This is illustrated by the honesty and candour within raw data included in Chapter Seven. For example, it is unlikely that a lecturer would elicit a candid comment such as, "It was possible to pass through faking understanding" within a face-to-face interview. The use of many open-ended items facilitated gaining participants' perspectives using language natural to them. Consequently, this limits the effect of the researcher's biases and beliefs as might happen through directing a line of interviewing.

Also well documented are the disadvantages of self-completed questionnaires. Perhaps the disadvantage of greatest influence in this study is the fact that participant responses could not be probed and explored further. The design of the questionnaires used within this study attempted to limit this disadvantage by asking for further explanations, examples, and key components where appropriate.

Another disadvantage of self-completed questionnaires is that they can be read as an entirety and thus, no question asked is therefore independent of the others and answers may be influenced due to information included within later questions. In designing the pre-course questionnaire, an attempt to reduce the influence of this in relation to what pre-service teachers hoped or expected to find within the *Teaching of*

*Science* course, led to asking the same question in two different ways and to ensure that each was on a different page. This disadvantage was also kept in mind in the design of the Phase Two data collection tool so that minimal content knowledge related to the notion of reflection, or being a reflective practitioner was included. Importantly, the emphasis was on the participant's understanding or experience with these. In addition, the variety of item choice was used, in part, to avoid information only being presented in one format. The questionnaire was designed to limit completion fatigue through variety of item format and focus. The disadvantage of typically lower return rates is not evident within this study. In reference to the pre-course questionnaire, this is because it was part of the *Teaching of Science* course. Possible reasons for the "very good" (74% for 2003, 78% for 2004) (Bryman, 2004, p. 135) rate for Phase Two written data may include genuine interest in investing in quality teacher education and a sense of relationship with both the researcher and institute. As the written data for Phase two was collected on the very last day of their on-campus attendance, and all assignments were marked, it would be unlikely that the pre-service teachers felt pressure to participate – and some certainly chose not to do so.

### *Interviews*

Throughout the study, other sources of data such as conversations within the *Teaching of Science* paper and semi-structured interviews are referenced.

The conversations became part of my experience within the study. Semi-structured interviews were used on two occasions and in each instance only involved two pre-service teachers. The first instance involved pre-service teachers from a cohort before those enrolled in the *Teaching of Science* paper. The purpose of these interviews was to explore the influence of on campus papers on decision-making within the final practicum. The second instance was with pre-service teachers from the year group after those enrolled in the *Teaching of Science* paper to gain some feedback related to initial findings related to the notion of "becoming a learner".

Interviews were not the source of much data for the final form of the study. In the first instance, this is due to the nature of this study and its emphasis on hearing the pre-service teachers' voices. Consequently, there was a perceived need to lessen the influence on responses of the lecturer who was also the researcher. Secondly, the researcher was committed to undertake the study in a way that established and

maintained ethical safety. As for questionnaires, the advantages and disadvantages of interviews are well established in the research literature. Of importance to this study, the advantages of interviews relate to their flexibility and potential for probing participant responses further. For this study, the particular disadvantages related to the dual role that the lecturer -researcher had. In terms of data from interviews, one would not have had the same confidence in the level of honesty or disclosure that is evident within the anonymous questionnaires.

#### *Meta reflections, emails and journal entries*

The use of materials generated within initial teacher education courses as data for research is clearly established in literature relating to the development of reflective practitioners. Within this study some (66%) of the pre-service teachers enrolled in the *Teaching of Science* paper responded positively to an invitation at the end of the paper to make documents such as their meta reflections and reflective emails generated within that course available as data. Pre-service teachers' material was not produced at the request of the researcher for the purpose of the research but is representative of pre-service teachers' engagement with opportunities to be reflexive about their own learning and engagement with course work within their initial teacher education programme. The criteria for assessing the quality of personal documents, suggested by Scott (1990, p. 6) and referred to in Bryman (2004, p. 381) are met by these materials. The fact that the documents used as data were certainly genuine and of unquestionable origin satisfies the *authenticity* criterion. The second criterion relates to the *credibility* of the documents in the sense that they be free from error and distortion. In this case – the fact that some retain sentence syntax errors can be viewed as evidence of credibility. The third criterion requires that the documentation be *representative* of its kind and this is surely the case, given the origin of the documents themselves. The final criteria related to the data being *clear and comprehensible* results from the fact that the pre-service teachers are involved within a recognised initial teacher education programme with the same requirement.

### **3. Ethical considerations**

Appropriate procedures for obtaining consent were maintained and necessitated gaining ethical approval from two institutions – one relating specifically to

researching with students I taught in the institution where I was employed and in which the study occurred (received 18/08/01), and the other from the supervising institution (received 19/6/2002). In respect to ethical considerations two key issues were targeted:

- the visibility of the institution, and
- protecting the pre-service teachers from harm.

### **3.1 The visibility of the institution**

As identified by Tolich (2001, p. 9), “New Zealand’s smallness makes it relatively easy to identify any institution.” Given the open and iterative nature of the study, the key concern within institutional visibility is consequential identification of persons within that institution. Though all steps have been taken to protect its identity, it is not possible to claim success in this regard.

### **3.2 Protecting pre-service teachers from harm**

A key ethical consideration during this study has been the privileged position in which the researcher finds herself – as lecturer and practicum visitor to and with those she is researching. In recognition of this and a sincere commitment to pre-service teachers’ well being, those involved in the *Teaching of Science* course were:

1. Assured that the course was not designed for research purposes, but rather the course was designed on quality pedagogical principles, but the experiences of learning within the course were the target for the research. In other words – I needed to satisfy myself and the students that I would not teach this course differently if I was not undertaking research. My commitment was and remains to the students’ learning, but the focus was on factors which influenced this learning. The *Teaching of Science* paper included weekly opportunities for students, given a supportive framework, to reflect on their experiences *as learners* in the on campus phase of the paper and as learners and teachers during their Practicum Four experience. The pedagogical principle underpinning this approach accepts that helping the students to grow in understanding how they learn and what influences their learning, may be transferred to understanding the influences on classroom learning and teaching

and the assumptions that underpin their own decision-making processes.

However, the main ethical consideration related to how something which is required as a component for a course, may also be used as data within a research study. The suggested and accepted way forward was that students be given the option as to whether or not the reflections are included in the research data. In other words, they must be done as part of the course methodology, but student consent was required for them to be used in the research. As already mentioned, the researcher was not aware of how students had responded to this invitation until well after the course had concluded. In fact, it was the following academic year before the sealed envelope was collected from the Associate Dean and this information accessed and analysed. (see Appendix H)

2. Fully informed about the type of information being recorded – and that their identities are protected. While the fact that students who agreed to participate in the research knew they were doing so may have influenced early responses, it was my belief that it would be unlikely that such initial influence would be sustained over the whole paper.
3. Assured that their involvement in the research would in no way jeopardise or influence their course grades. For example, I would not treat them differently in this paper or any other papers I teach whether or not they choose to participate in discussions while on practicum. Similarly the degree to which they agree or disagree with the course approach will not affect my commitment to their development and growth. This assurance could be given due to the fact that I did not know who had chosen to participate until after the course was completed and all marks were processed through the Board of Examiners.
4. Assured that the process would be as open as practicable. The challenge for the researcher was to manage such openness in a manner which would have minimal influence on student responses. This process was strengthened through the establishment of another staff member as a ‘critical friend’ to whom the students could go if they felt that I was not hearing their concerns or if they perceived that what I was doing was for the research first, and not their learning. Each cohort of students also has a student representative and this provided another avenue

through which students could communicate any concerns they had to the Associate Dean through normal processes.

In relation to Phase Two data collection and the use of the vignette and what is referred to as the Final Questionnaire (FQ), participants (both teacher educators and pre-service teachers) were invited to choose their own pseudonym. The information from the questionnaire was entered into a data base by someone other than myself, and consequently data analysis has been conducted in terms of these (pseudonyms).

#### *Protecting teacher educator participants from harm*

In the first instance, it is recognised that for some teacher educators participating in the study made them vulnerable. Some may have felt pressure to participate out of relationship or a sense of obligation. Others may have felt vulnerable in terms of putting their own ideas “out there” and be concerned with maintaining “face”. Once again the privileged place of the participant researcher is acknowledged. Increased sense of safety was sought through assuring teacher educators that the process in no way was one of scrutiny or evaluation. With such privilege comes the responsibility to treat with great respect the data which has been given as a *taonga*, a treasure.

### **3.3 Ethical Limitations**

The dual roles of teacher-researcher were found to be problematic. While all steps were taken to minimise their influence, inherent power relationships cannot be ignored when a researcher is also the giver of any part of a course grade. It is possible that data are influenced by the desire to please or, even to make a point outside the intended research focus. My first responsibility was to the students’ learning, and consequently where, within my teaching and relating to students or staff, a decision needed to favour one of these roles, the teacher role was chosen. This put unexpected pressure on me as researcher. One example of this is used to make the point. In Phase Three, I was teaching the Year Three students in their *Research for Teachers* paper. This is a year long paper and so to ensure all ethical considerations were honoured, collecting data through the final questionnaire was postponed until the final day of their programme. This internal dialogue between researcher and teacher was most uncomfortable and always ended with being over

cautious, and sought to honour the students while at the same time harbouring a concern that the data may not be collected. For example, I knew them well and was acutely aware of the level of pressure they were feeling, given the combination of the inherent pressure from an end of their final semester, and the fact they were finalising CVs and seeking teaching positions as beginner teachers. Consequently, I did not want to add to their perceived load. This was solved through the delay of the questionnaire until the last day of their course by which time all formal work was complete.

Another limitation is that the data from the pre-service teachers' final questionnaire may be influenced by the psychological perspective change which comes with programme completion. On the other hand, there may be advantages from the fact that the questionnaire was seeking some global responses in relation to their entire teacher preparation, and for these items the fact that the students completed the questionnaire at this time – with some critical distance from their individual papers - may be beneficial.

The departure of a staff member who was significant in providing insight from an institutional perspective also limited the data collection process. This person's overnight departure was just before the planned semi-formal interview with them. Their departure could not be predicted and created consequences in terms of institutional and staff foci which also have consequences for the study. It leaves a specific hole in the data: the significant institutional knowledge held by this person was no longer available to the study.

#### **4. Coding the data**

Generally, across the different data sets, analysis followed “. . . the qualitative technique involving codification, classification and thematisation” (Bouma, 2000, p. 186). This meant that irrespective of the type of data, initial action was to identify and use appropriate codes to capture the foci of the data. Once codes had been established to represent the data they were considered in terms of categories. Next, the data were reconsidered to check for consistency with the final categories.

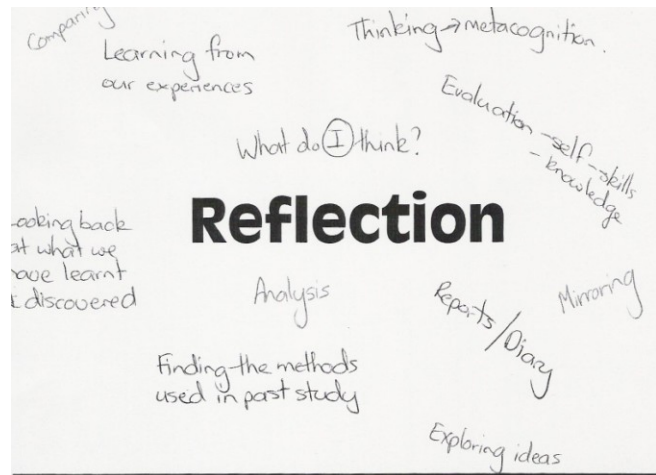


Typically, within this process a few responses would be realigned. Finally, the data were reconsidered in terms of relationships between categories.

An example is the Gestalt activity where pre-service teachers wrote phrases or words which were triggered by the word REFLECTION as indicated to the right in figure 5. The first step was to code responses in terms of the focus of the response.

For example, a student response such as honesty, was attributed the code 'att', short for attitude.

A response, 'looking back at what we have learned' was attributed the code 'pro', short for process. These were then grouped into categories. Initially, 14 such categories were identified. The data were then reconsidered to check for consistency with the final categories. A few responses were moved in this process and one category (action) was merged into another (process). Finally, the data were considered for relationships between categories. For example, with reference to the data from the February cohort and using the correlation formula in MS Excel, the two categories of process and purpose were compared with the self-aware category, yielding correlation scores of -0.18 and 0.72 respectively. The -0.18 correlation tentatively suggested that when more emphasis is placed on reflection as linked to process, less emphasis is placed on self-awareness. Similarly, the 0.72 correlation suggested that when more emphasis is placed on purpose for research, more emphasis is also placed on self-awareness. Thus, the process resulted in the emergence and identification of some key themes and patterns. (see Appendix I for detailed analysis).



**Figure 5: Sample Gestalt-like activity response**

#### **4.1. Working with questionnaires, reflections and meta-reflections**

For data which included mainly prose responses, the initial intention was to analyse data in terms of how it demonstrated reflective writing which had potential to lead to

ongoing development. Consequently, a comprehensive rating scale was developed to reflect multi-dimensions related to the writing's focus, level of thinking according to SOLO taxonomy and its perceived potential for improved teaching and learning. However, even though substantial effort and time had been invested in this process, the resulting scale was abandoned as a basis for data analysis for two reasons. First, the final ranking, did not value the contributions participants made in terms of providing insight into the research question at the heart of this study. Such an approach is more indicative of a technicist rather than a reflexive approach and certainly lost any sense of narrative flow (Bryman, 2004). Second, and most importantly, such an approach to analysis did not value the pre-service teacher's voice in an authentic manner; as Miles and Huberman (1984, p. 739) refer to as "responsive focusing". This original analysis approach and process was more aligned to the initial expectation of discovering a sequential, logical, neat world (see Chapter Three. Also, Norsworthy, 2005b). As is noted by Bryman (2004), this process has a tendency to fragment data. However, what was sought was "less concentration on the collection and processing of data and more on interpretation and reflection" (Alversson & Sköldberg, 2000, p. 241). The reality is that participant responses are "messy texts" (Denzin, 1997, p. xvii). Consequently, a similar process to that used for the Gestalt activity was followed. Participant responses were read and re-read in order to develop familiarity. Sentences and other forms of word responses were considered systematically in order to draw out apparent intentions for each pre-service teacher's meaning. Rather than coding by word unit, coding was undertaken on meaning units. Sometimes this may be a phrase or an entire response to a particular question. Sometimes one participant's comment or metaphorical language would act as an alert to re-read other texts to see if the same idea was present. Within a reflexive framework, asking questions of interpretation is important in order to do the best one can to ascertain an authentic meaning. As indicated by Gay and Airasian, "Interpretation is concerned with making sense of what the descriptors mean" (2000, p. 239). For this reason, during and after coding of written material, integrating themes throughout each participant's responses were sought and valued. In other words, the coding process was supplemented with a simplified narrative analysis. In particular, careful attention was paid to any linguistic tools, such as metaphor, simile or rhetoric – as these both reflect and shape one's perspective (Lakoff & Johnson, 1980), act as filters and mirrors to one's

meaning (Hunt 2001; Lesnik, 2005; Perry & Cooper, 2001), and help link personal and public theories (Griffiths & Tann, 1992). “Metaphors serve as orienting constructs that sustain a sense of wholeness” (Luborsky, 1998, p. 327, cited in Koro Ljungberg, 2001, p. 371). Within the data analysis process, (as Chapter Five demonstrates) metaphors such as ‘undoing the mold’ of the old way of learning, or ‘hauntings’ emerged and these provided insightful understandings.

#### **4.2 Analysis limitations**

Adherence to ethical considerations often meant that coding occurred well after the event. To obviate this time lapse, a focus group to test initial tentative findings from the final questionnaire might have been advantageous. However, the fact that the final questionnaire data was collected on their last day on campus meant that this was not possible.

### **5. Conclusion**

In keeping with the nature of qualitative research, and the search for meaning through the critical reflexive interpretive framework developed throughout the iterative process of this study, it is understood and acknowledged that another researcher may well come to an alternative analysis. The analysis offered here is one attempt at an authentic telling of the story within the data. As is indicative of reflexive inquiry, the data and its analysis and consequent interpretation are described for others to examine. They are offered with humility and importantly, in a manner which seeks to value the participants’ voices. The themes which emerge from the iterative reflexive experience which was the process of experience, enquiry and examination provide a context for the discussion of results.

## Chapter Five

### Identifying and Undoing the Mold

I also do not want to teach students the way in which I was taught during my schooling. It is very hard though to *undo the mold*, which has been reinforced constantly in science lessons during the last 12 years plus of my schooling. (Peter Piper, MR) [emphasis added]

#### 1. Introduction

This chapter presents findings related to the pre-service teachers' way of working with course content and the notion of reflection within course work. These findings indicate that the degree to which students 'owned' or 'connected with' the concept of reflection is vital to their personal and professional purpose for being reflective. However, even within a teacher education programme which espouses a commitment to the development of reflective practitioners, questions as to how this connection occurs remain. In response to the research sub-question: What inhibits pre-service teachers reflecting or being reflective?, the findings in this study indicate a major hindrance – a hindrance which, if not examined, has the potential to obscure initial teacher education programme goals in regard to reflection. The chapter utilises Peter Piper's analogy of a learning mold in the introductory quote, as an organising tool. His quote is indicative of the finding that while pre-service teachers may indeed wish to approach their own teaching in a manner different to their experience, "*it is very hard . . . to undo the mold*" of learning. Given that findings identify a range of factors which sustain or are necessary to undo this mold, or old way of learning, this chapter has a pivotal place in the development of the thesis at the heart of this study. Even though the old way of learning has contributed apparent educational success to date, Peter and some of his peers recognised it as a hindrance to further development. First, the chapter reports findings which describe the nature and character of this hindrance.

Second, the chapter presents a description of factors which sustain the old mold's existence. Third, the chapter turns attention to findings which relate to factors which undo this old learning mold. As indicated in the previous chapter, reference to raw data sets is as indicated in table 5 below.

Pre-course questionnaire	PQ
Gestalt activity	GA
Course email reflections	ER
Course meta-reflections	MR
Vignette	V
End of programme questionnaire	FQ
Assignment Feedback response	FA
Informal conversations	IC

**Table 5: Abbreviations for raw data sets**

## **2. The 'old mold of learning'**

This study found that over half the pre-service teachers (59%) viewed the approach to learning which they bring to their initial teacher education as a hindrance to their ability to learn in a manner which is reflective. Typically, previous school experiences have shaped such an approach. As mentioned above, before focusing on factors which may either sustain or undo the mold, it is appropriate to first identify characteristics of this mold as perceived by the pre-service teachers.

### **2.1 Characteristics of the mold**

In the first instance, findings from data generated from a pre-course questionnaire (completed before the first course lecture) and a meta-reflection at the end of the course, shape this section of the chapter which focuses on understanding this old way of learning and its characteristics. The pre-course questionnaire was designed to capture initial attitudes and expectations pre-service teachers (n=39) brought to the *Teaching of Science* course. The meta-reflection required pre-service teachers enrolled in the *Teaching of Science* course to revisit weekly reflections they had

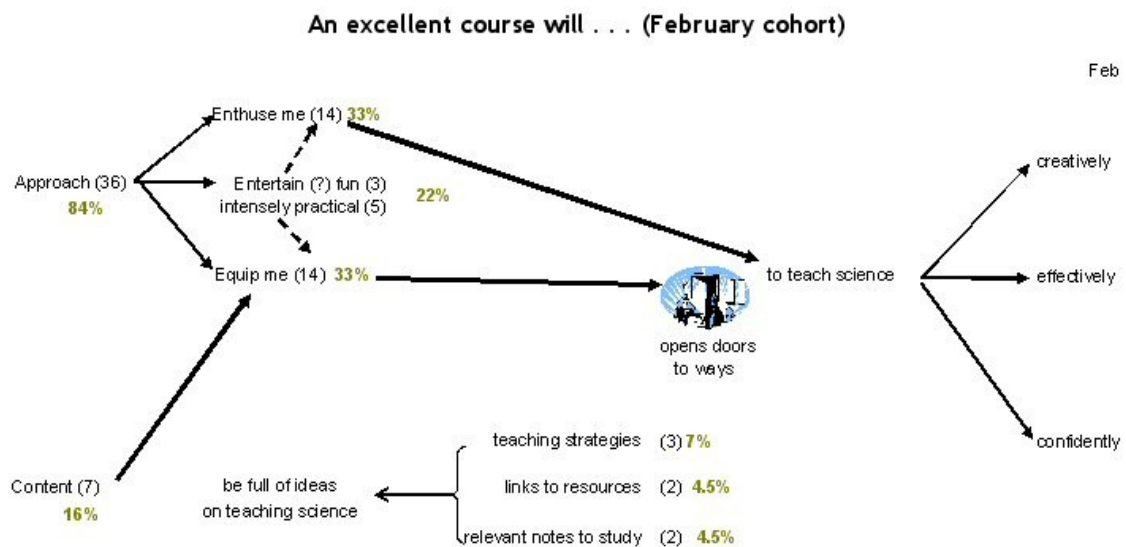
recorded throughout the duration of the course and to identify themes and interesting ideas related to the way they had grown as teachers of science. Data were collected from two cohorts of pre-service teachers enrolled in the *Teaching of Science* course – one which began in February (n=19) and the other in July (n=20). 59% of pre-service teachers commented in their end of *Teaching of Science* course meta-reflections on this need to unlearn their previous approaches to learning. A number of these students provided some insight to the characteristics of the mold from which they have broken or want to break. Understanding the characteristics of the ‘mold’ are drawn from these students’ comments which either directly identify a characteristic of the previous learning mold or which indicate characteristics by inference. For example, the same characteristic as noted by Peter Piper in the introductory quote to this section is also noted by Ruth’s direct description of being previously “dependent on receiving content” and by inference in Gary’s comment related to the focus of his concern or efforts during initial teacher education. He noted a move from focus on himself and the accumulation of notes to study later, to the students he was, or would be, teaching. “By mid Year Three I had turned completely, how they think, what they think and why they think concerned me most” (FQ).

#### *Expectations and beliefs brought to Teaching of Science Course*

The pre-course questionnaire collected pre-service teachers’ expectations for *The Teaching of Science* course from two different angles. The first related question (Question 5), asked the students to describe the components they ‘hoped would be in the course’ and the second question (Question 8) asked the students to describe what they believed to be the ‘characteristics of an excellent course’. To provide increased likelihood of unique answers, I placed these questions on different sides of a page within the questionnaire. These invitations were two ways of accessing some of the beliefs the students brought with them related to how the course might contribute to their learning and to the development of reflective teachers.

Insights from the July cohort follow findings from the February cohort’s responses. The February cohort’s expectations are captured in figure 6 on the next page. They identified two key characteristics of an excellent course. The dominant characteristic (84%) of responses related to the teacher educator’s approach to the

course and the second characteristic (16%) related to the content within the course. It is interesting to note that within their expectations related to the teacher educator's approach to the course, students sought to be entertained with fun activities (22%), enthused (33%) and equipped (33%) in order to “open doors to ways” (Kate, PQ) pre-service teachers would teach science confidently, creatively and effectively.

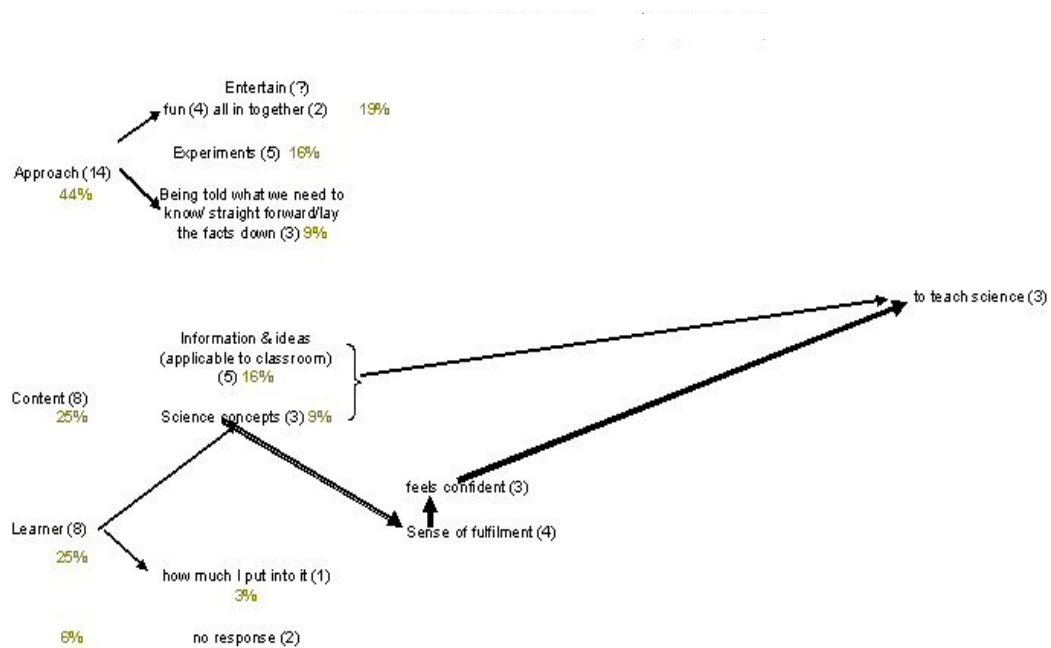


**Figure 6: Characteristics of an Excellent Course**

As one might expect, in relation to the content which would be within an excellent course, students looked for the course to “be full of ideas on teaching science” (Donna, PQ). However the dominant focus is summed up by Katarina (PQ) who sought a course which was “practical, fun, interesting, inspiring!” [emphasis in original]. Some students were more particular and named content components they hoped would be within the course. Namely, teaching strategies (7%), links to resources (4½%) and relevant notes to study (4½%). The findings indicate that the students’ expectations firmly focus on the role of the teacher educator in this process. The teaching/learning process is external. There is no mention of the role which students would play in this process. For example, it is not they who will open the door to this teaching of science but rather the teacher educator who will do this for them. Students’ expectations for the course imply that the teacher educator will do the work – including the provision of passion to teach and ideas so that they can see the relevance of teaching science. The overall impression is that

the pre-service teachers expect to be receptors of information while being entertained and being ‘filled’ with good ideas.

The July cohort showed some of the same responses as outlined above but with some noticeable differences. Though not as strong as the February cohort’s expectations, the dominant characteristic (44%) of responses also related to the teacher educator’s approach to the course. Within this Question 8, and as illustrated in figure 7 below, a larger percentage of this cohort (25% July, 16% February) expressed expectations which related to the course content.



**Figure 7: Characteristics of an excellent course  
(July cohort)**

The emphasis for course expectations for this cohort appears to be quite different. The cohort displays a similar level of interest in the course being fun in a collaborative way and this characteristic may be equivalent to the notion of entertainment so obvious in the February cohort. Other components within the dominant characteristic include doing experiments (16%) and “being told what we need to know” (Cassandra, PQ) in a “straight forward way” where the teacher educator would give “straight forward (laying the facts down) teaching so I’m not confused” (Theresa, PQ).



While pre-service teachers in the February cohort omitted mentioning any expectation relating to a student's role in the course, one pre-service teacher in the July cohort indicated that the success and quality of the course was linked to "the effort which I put into it" (Pauline, PQ). For both cohorts the emphasis appears to be on clear communication of information through a transmissive and technicist approach in which the pre-service teacher plays a passive role.

While the February cohort expected the resultant enthusiasm and equipping to open doors to ways to teach science creatively, effectively and confidently, the July cohort emphasised developing a sense of fulfilment which would lead to feeling confident to teach science. Both cohorts note the idea of confidence but at different stages in the flow diagrams (Figure 6 and Figure 7) which capture the data. The importance of this confidence is a focus in the next chapter.

Both cohorts emphasised the teacher educator's role, but had different expectations. For the February cohort, the teacher educator's role related to making pre-service teachers more passionate about science, to inspire, enthuse and motivate. On the other hand; the July intake appeared to expect the teacher educator to "just tell me what I need to know" (Cassandra, PQ). Each cohort's responses include an interesting relationship between the teacher educator's role, characteristics of the *Teaching of Science* course and its outcomes for pre-service teachers. For example, the February cohort perceived that the teacher educator would enthuse, entertain and equip pre-service teachers and as a result would 'open doors' to ways to teach science creatively, effectively and confidently. On the other hand, the July cohort indicated that the course's content and approach would result in the pre-service teacher understanding the concepts *so that* they feel confident, *so that* they can teach science. One cohort's characteristics of an excellent *Teaching of Science* course emphasised the type of teaching they will do, while the other cohort emphasised their own level of confidence to do that teaching.

As well as being asked to identify what characteristics would make it an excellent course (p. 113) pre-service teachers were asked to describe what they *hoped* would be in the course (see Appendix J for analysis chart). Findings from the data

generated in these descriptions also hold some interesting observations related to characteristics of the old learning mold. As previously, the cohort responses contain some major differences. A majority of comments (67%) from the February cohort's hopes about the *Teaching of Science* course related to the accumulation of content. These hopes included content related to the nature of science (3.9%), scientific concepts (5.9%), how to use the curriculum document (7.8%), as well as techniques to use in teaching (23.5%). What became obvious by the end of the course was that this cohort included pre-service teachers who sought very specific information related to how to set out equipment for experiments. Interestingly, their hopes for the course had included a desire (11.7%) for notes to refer to later. Similarly, the majority of comments (75%) within the July cohort's hopes for the course also related to accumulation of content. In the most part their focus was on similar key components – science knowledge (16%), teaching strategies (33%) and how to use the curriculum in planning age appropriate lessons in the everyday classroom (4%). Two key differences stand out. One, pre-service teachers within the July cohort also identified a hope that the course would provide good resources (18%) and unlike the February cohort, they did not identify the very specific management issues, nor seek “good notes to refer to” later. It is interesting to note that only one student from either cohort sought information about the learners they would teach. Daisy wanted the course to include knowledge about “how a child’s scientific mind works” in order “to know what I am working with”.

In her end of course meta-reflection, Freda recalled experiences with previous approaches to learning which required her to “take information and dump it somewhere” (MR). Gary demonstrated how his approach to learning related to what he valued as evidence for successful teachers – something which changed over time. In his end of programme questionnaire he wrote of his own journey and one point of significance in his record is how he appears to put his learning into expectations for the students he will teach.

I came to CI thinking successful teachers had students with heaps of written notes, formulas, check sheets, etc. By mid Year three I had turned completely, how they think, what they think and why they think concerned me most. I'd not worry so much whether they write screeds of paper. In Year one I wrote everything down, by Year three there is a lot less writing. In Year three I am reflecting anything, anywhere, with books or without. That was not happening nearly so well in Year two and less in Year one.

An interesting relationship appears here. Gary began his initial teacher education with a view of what students with a successful teacher looked like and this view shaped his approach to learning. However, as his view of a successful teacher changed, so did his approach to learning – and his expectations of students.

Further analysis of the data suggests that characteristics of the ‘mold’ of learning which students perceive they need to undo include:

- a dependence on receiving content
- no expectation or requirement to think for themselves
- a belief and expectation that they will receive from the teacher educator, and give to the teacher educator one ‘right’ way or answer
- a student’s sense of inadequacy, apprehension and boredom

In the following comment about *The Teaching of Science* course and the process of changing one’s approach to learning, Marika provides insight to both the sustaining power of ‘the mold’ as well as her idea about how that mold might be undone.

I think that it is very difficult to try and undo learning that has been enforced over 13 years of schooling in 6 months of lectures. I think the way that we undo this wrong learning is by unpacking it to expose the weaknesses of it but also to discover its strengths that can be adapted to our new learning.

Next, findings give insight to this ‘unpacking’ process, and identify the factors pre-service teachers and teacher educators at Clearwater Institute indicate sustain the old learning mold.

## **2.2 Factors which sustain the mold**

While Peter Piper’s analogy is the organising tool for this chapter, other pre-service teachers presented different analogies. For example, Marika captured the same need to ‘undo the mold’ when she claimed that:

This course has been what I believe [to be] my first step out of this cycle but by no means the only step (MR).

The old mold is seen to hinder the process of ‘active learning’ and its pre-requisite focus on reflective thinking. As might be anticipated, when viewing common

factors, each group of participants emphasise their own perspective or role in initial teacher education. The degree of fit between factors identified by pre-service teachers and teacher educators is included in table 6 below. Factors which related to the teacher educator or institution are presented in Chapter Six, in which the focus is on the institution as a reflexive space

<b>Pre-service teachers identify the following factors</b>	<b>Teacher educators identify the following factors</b>
<b>About learning</b> Initial attitudes Learning as entertainment Avoiding discomfort Lack of personal connection (ownership of)  <u>Focus on:</u> Accumulation of content Outputs (completion, presentism) rather than thinking  <b>About teaching</b> Lecturer bias lecturers as those who ‘give’ learning  <b>Institutional factors</b> Time Reflection overdone	<b>About learning</b> Initial attitudes Learning as task rather than process Quick fix, personal security Resistance to learning as process If it works it must be ok  <u>Focus on:</u> Outputs (completion, presentism)  <b>About teaching</b> Lecturer bias Lack of commitment to teaching Beliefs about reflection Self-efficacy  <b>Institutional factors</b> Time Assessment design Course outline Inherent values in institutional language Professional development needs

**Table 6: Factors which sustain the mold**

The next sub-sections of this chapter focus on factors related to learning and teaching which both pre-service teachers and teacher educators identify to sustain the learning mold and therefore, inhibit the development of reflective neophyte teachers.

*2.2.1. Factors relating to pre-service teachers' view of learning*

Findings within this section reflect a view that, for pre-service teachers, the on-campus components of initial teacher education programmes are a time to “stockpile” knowledge. This knowledge is held in store until the time comes, either on practicum or as a beginning teacher, to “apply” it in a practical setting (Tom, 1997). It appears that for pre-service teachers an initial view of learning which is entertaining, focuses on accumulation of content and completion of tasks, includes three factors which sustain the old learning mold.

*Learning as entertainment*

Analysis of data from pre-course questionnaires indicated a belief that understanding is based on ‘fun and enjoyment’. It appeared that the students wanted their *Teaching of Science* course to be ‘fun’ and ‘to entertain’ and they want to be equipped to teach so that children also have enjoyment and fun. As Ruth declared:

I haven’t experienced what I would call ‘amazing science’. However I have experienced teachers who taught science well and kept me entertained.

What appears to be a common factor for both what students hope will be in the course, and characteristics of an excellent course is that student responses focus on characteristics which originate outside the student. Being entertained does not require the student to invest effort in processing the fun. Perhaps there is a link between this non-engaging attitude and the belief expressed by a student that “you either can do it or not – no matter how much you study” (Cassandra, FQ, 2003). Within the students’ comments there is some sense that the fun and intensely practical activities feed into the dual processes of being enthused and equipped. Interestingly, teacher educators did not identify this focus but rather focused on pre-service teachers’ desire for ‘quick fix’ ideas linking such to a lack of commitment to an in-depth process of learning (Shannon, V, 2003). This links to pre-service teachers’ apparent avoidance of discomfort discussed below.

The final questionnaire (administered 18 months after the pre-course questionnaire) invited pre-service teachers to indicate a level of agreement with the following statement: “Effective learning is always characterised by being fun”. 10% of participants (n=29) definitely agreed and added comments such as “It should be!”

(Bob the builder, FQ, 2003). Dennise was one of the 28% who agreed with the statement with reservation commenting, “Having fun is a key component to effective learning”. 48% of participants definitely disagreed with the comment adding such statements as:

Joy:        You can learn quite effectively from bad experiences as well.

Kava:      My last practicum was very hard and stressful but I learned much from it.

Phill, who definitely disagreed with the statement added: “It should be though. Learning needs to be fun” and disagreed with the statement “Sometimes learning is characterised by discomfort or disequilibrium” (FQ). In the first instance, one interpretation could be that Phill thinks the ‘definitely disagree’ response is the ‘right’ answer but she still holds to her initial belief about the role of fun within the learning process (FQ, 2003). For her, the avoidance of discomfort appears to be another factor which sustains the old mold of learning.

#### *Avoiding discomfort*

Another characteristic which sustains the old mold is a tendency to avoid cognitive, emotional or social discomfort within the process of learning. A view of learning as entertainment means that a sense of inadequacy and apprehension which pre-service teachers might have is likely to remain. To engage these feelings usually results in a time of discomfort before a sense of growth and confidence emerges. Claxton (1999) links this type of discomfort to a willingness to be open minded.

To be open-minded is not to be swamped or paralysed by questions....but to be ready to see learning invitations when they occur. With a closed mind, any discomforting discrepancies from “normal” are simply disregarded. The subjective world remains cosy, familiar. (pp. 180-181)

This tendency is definitely present in pre-service teachers’ thoughts about reflection. In the light of the fact that the reflective process has the potential to identify one’s espoused theories, inner thoughts and practice weaknesses, pre-service teachers identified pre-service teacher maturity and personal security as important factors. A group of pre-service teachers, all of whom are mature-age, point to the possibility of a student’s developmental stage, as a reason for minimal connection with reflection.

I think the attitude of some of the students. Often it is those straight out of school, with little life experience. They don't seem to know how, or sadly don't want to. (Gary, FQ, 2003))

or,

Is there a difference between young school leavers and mature adults in the way they reflect? Developmentally we are at different stages, so there could be differences. (Sharon, FQ, 2003)

However, maturity as equated with age, does not guarantee a greater willingness to truly reflect. In fact, the opposite can also be the case with habits and life scripts causing rigid, staunch views. Perhaps it is for this reason that Lynelle, one of the group of pre-service teachers referred to above, linked this maturity to the need for personal security.

I think that sometimes people feel they don't want to 'share' their thoughts, weaknesses etc. It's about being mature enough and confident enough in yourself - to realise that learning is lifelong and you don't have to have the 'correct' answer. (Lynelle, FQ, 2003)

While Lynelle's comments indicate a combination of maturity and self-confidence or security, Felicity's example suggests that a greater emphasis might be placed on the self-confidence or security characteristic. Felicity, a mature age student enrolled in the B Ed (teaching) primary programme, appeared to have bought into the idea of reflection throughout the three years. However, commenting about her own experience throughout the programme, she recorded:

At times I have felt really threatened by the process because in allowing others to read my reflections - they will get to know me. 'I don't think so!' The journaling freaked me out. I was never really honest.

It is worth noting in relation to the place of discomfort in learning, that, as in the literature (e.g. Berry & Loughran, 2002), a counter voice is present within the data. Some pre-service teachers (Lee, Jane, Katarina) acknowledged the importance of this discomfort in the learning process and this will be revisited in the next chapter which focuses on characteristics of learning approaches which undo the mold. In either the pre-course questionnaire or meta-reflection, a large proportion of the pre-service teachers (22 out of 39) registered a sense of apprehension and inadequacy related to the teaching of science for reasons such as: confusion, insufficient knowledge, and previous experiences. Comments such as: "science wasn't really one of my strengths" (Jonny Wilkinson, MR), "my previous experiences in science classes" (Billinda, MR), "science has never been a subject that interests me" (Phill,

MR) capture some of these feelings which pre-service teachers brought with them into the *Teaching of Science* course. Donna noted:

I do not wish to pass on the same feeling of incompetence in this area I have been made to feel by teachers in the past.

It is interesting to note that even though they did not have their pre-course questionnaires to refer to, and one may assume they had forgotten what they wrote, several pre-service teachers' meta-reflections revisited this initial sense of apprehension and inadequacy mentioned some six months later. For example, Jonny noted feeling "a bit apprehensive but eager to learn" (PQ) and her meta-reflection began with the following sentence. "When this science course first started I was a bit apprehensive and felt very inadequate since science wasn't really one of my strengths." On this basis one may suppose that the sense of apprehension and inadequacy was deeply embedded in the student's learning lens and consequently had the potential to influence the learning experience within this course. The importance of engaging such initial states is a focus later in the chapter when attention turns from factors which sustain the learning mold to those which break or interrupt the old mold, the old way of learning.

Discomfort does not always link to pre-service teachers' attitudes but can also arise due to the 'bank of experiences' which they bring to courses. For instance, another source of discomfort registered by over 50% of the July cohort arose from the fact that they hadn't "seen a science lesson taught". The sense of not knowing what is expected in teaching primary science was uncomfortable for pre-service teachers as their recent memories were of secondary school science which was typically viewed as boring and text book based. This lack of experience and knowledge has major influence on the level of confidence which pre-service teachers bring to a course. Added to the lack of content knowledge recognized by pre-service teachers, this lack of awareness of what teaching science looks like in the primary school is a source of discomfort for pre-service teachers. This is a source of concern to initial teacher educators, given the fact that the pre-service teachers who made this statement were half way through their initial teacher education experience.



While a sense of emotional and cognitive discomfort is associated with significant learning and definitely with the process of reflection, the emotional dimension involved is an often-neglected component of educational endeavour (Hargreaves, 1998). The *Teaching of Science* course was deliberately set up to model and require active learning and reflective engagement in the on-campus lectures so that pre-service teachers might be able to maximise learning about factors within the reciprocal learning/teaching process. Weekly lecture slots were set up as sources of learning rather than transmissive appointments with opportunities to copy the notes from the whiteboard as pre-service teachers such as Peter, Bob the builder and Ann initially hoped for. The *Teaching of Science* course “began with us being challenged to confront our own beliefs and assumptions about science” (Laura, MR), and according to Felicity “throughout this course I have constantly been challenged as to how and why I shall teach science” (MR). Pre-service teachers who remain with the old learning mold avoid the discomfort which results from such assumption critique.

The way I worked with questions in the *Teaching of Science* course seemed to generate a sense of disequilibrium for pre-service teachers. My tendency to use their questions as springboards and opportunities to develop an inquirer’s stance rather than to provide immediate answers appeared to frustrate those who wanted to “be told what to do” (Cassandra, PQ) and disappointed those who wanted to gather notes to which they could later refer. Pre-service teachers respond to such feelings in different ways. Three examples indicate some of the ways pre-service teachers respond. First, one who avoided engagement; second, one who identified value but wished to continue avoidance, and finally, one example which recognises the pedagogical advantage of such an approach. For example, both Henrietta and Cassandra did not feel totally ready or confident to teach science – and yet, as can be seen from the following quotes, the way they manage these feelings is very different.

In the first example, Henrietta provided two reasons for her sense of not being prepared or confident and both of them are external to her, the fault lying with the course.

The first of which would be because my previous experiences with the subject of science have failed to have been broken down and rebuilt whilst I have been studying this course.

The second reason for not feeling confident at being able to teach science effectively is because I do not feel this course has equipped me to do so. I feel that I have failed to grasp the processes that I will need.

Her end of course evaluation clearly registered disappointment about unmet expectations for specific technical information such as “what order to put equipment out when doing an experiment.” On the other hand, Cassandra’s perspective is very different. She appears to have theorised her lack of confidence to teach science to the point that it can be a motivating factor for her ongoing growth and development.

Although I feel I have come a long way on this journey I still know I have a long way to go. I believe it's ok that I feel this way because I believe part of being an active learner is realizing that learning never stops it is an ongoing journey that once it has begun should never stop until the day we die.

One very painful event within the *Teaching of Science* course came for Kate, when she found that the beliefs she held about gravity were scientifically inaccurate. I still have the memory of the anguish which registered on her face at the time. Her reflection for that week raised many questions and caused her to stare doubt about teaching in the face. The intense pain of this discovery was most unsettling for her. The following comment highlights her anxiety:

One thing that has continued to scare me throughout the year is an overwhelming feeling of confusion in dealing with the amount of information that has been directed at me. The thing that worries me is how easy it can be to present children with the wrong information. I know! This happened to me and I worry that due to a lack of complete understanding on my part that I will pass on false information to my class. I also worry that as a result of not feeling completely confident that I will therefore fail to provide my class with the opportunity to experience science as much as I should (MR).

Even though she could see that the discomfort she felt might have been “an invaluable experience”, she still registers an intention to “avoid this happening” for her students:

Another thing that I really got an insight into was how hard it must be for students who continuously struggle in school and why they find it so easy to fall into behavioural problems through frustration and boredom. For the first time I found that I was being left behind in class and struggling to keep up with the teacher and finding myself looking for other ways to amuse myself. I think as a future teacher that this could have been an invaluable experience and I think in future it will give me a better understanding of how these children may feel and also ways in which to avoid this happening.

Other pre-service teachers such as Lee, Gary, and Ali could see that the challenge and discomfort were purposeful and even necessary in order to get them thinking.

As Lee noted:

I found that even though some of the issues raised were difficult it was for the purpose to really get us thinking, and isn't this what we would like to gain for our children? I do. (MR)

and Jane appears to have processed her ideas relating to this sense of discomfort to the point of presenting the following personal theory:

Allowing students to become uncomfortable, not getting answers immediately, but having to question, discuss and debate can actually be far more valuable and beneficial for their learning than giving them all the information straight away. (MR)

Teacher educators also recognised issues of security and vulnerability in pre-service teachers as part of their avoidance behaviour. While it is not always evident that they are referring to pre-service teachers alone, teacher educators identify security and vulnerability factors in terms of fears - such as “fear of failure” “fear of exposure” “fear of vulnerability” - and in terms of lack - “lack of courage” “lack of rigour” and “lack of interest”. Elements of fear and lack both linked to an impoverished sense of self-efficacy, lack of hope or sense of powerlessness to change a situation.

Findings suggest that for pre-service teachers, avoidance of discomfort is a factor which sustains the old learning mold. The related lack of engagement relates to the next sustaining factor – learning which focuses on content accumulation. Both of these, avoidance of discomfort and learning focused on content accumulation, share characteristics of what Claxton (1999) refers to as closed mindedness and Dewey refers to as *routine thinking* (see Chapter Two). Such thinking is characterised by words such as ‘tradition, instruction, and imitation’. It is the type of learning in which the ownership lies elsewhere in an external and unexamined authority.

#### *Learning which focuses on content accumulation*

When pre-service teachers and teacher educators focus on content and detail rather than big ideas, the old learning mold appears to remain unchallenged. For pre-service teachers it appears that such an approach to initial teacher education results in a view of learning as accumulation of content. For example, Kava hoped that

the *Teaching of Science* course would include “informative and helpful information” (PQ), and others found themselves facing an expectation where they would be “learning for the sake of learning” and “dependent on receiving content”. Related components of this desire to accumulate content include a reliance on written notes and the avoidance of thinking. Learning was not seen as engagement with material in an active manner but rather, like a good saver who banks his money for a later day, pre-service teachers sought to accumulate “notes which can help me later on in my teaching” (Peter Piper, PQ) or “good notes to refer to” (Kathleen, PQ). Peter Piper noted that characteristics of his previous learning mold included:

copying of information, no practical learning in sight and constant exposure to ‘the right way’. (FQ, 2003)

The expectation of one ‘right way’ is a restrictive approach to learning which apparently eliminates the need to engage material in a critical, reflective or interactive manner. The belief that learning results in finding out this ‘right way’ and giving it back to the teacher educators is characteristic of a technician or transmissive approach to the teaching/learning process and is described by the author within this chapter as ‘presentism’. Both pre-service teachers and teacher educators identified the power of “giving the lecturers what they want” approach. Such an approach requires the pre-service teachers to guess what this is and provides a reason why some pre-service teachers believed an excellent characteristic of the course would be that it be “Straight forward – laying the facts down teaching!” (Rachel, PQ). It appears that the key to a quick and unheeded progress through one’s initial teacher education programme appeared to include presenting to teacher educators what they want. Marcus illustrated this attitude when he indicated he had become:

more efficient as regards study. I have learnt how to better give to the system what they want (FQ, 2004).

This characteristic in Phill’s approach is already noted (“You say what lecturers want to hear in assignments not what you necessarily believe.” FQ, 2003) but another example comes from a conversation I had with her early in the *Teaching of Science* course. The topic of our conversation focused on the first assignment in which pre-service teachers were to present a developing rationale which would guide their teaching of science in the primary school sector. Phill asked if I wanted

her to write what she believed, or what I believed about the reasons for teaching science. I replied that I knew what I believed and that I would be very interested to know what it was she believed about the role and purpose of teaching science in the primary school and how those beliefs developed. This was not an insignificant event for her as she claimed that “teachers had been giving me the answers all my life” (IC) and I refused to do so. I wanted her to develop and own her own rationale. The power of what I have referred to as ‘apprenticeship of participation’ (Norsworthy, 2005a) proved very difficult to interrupt. Her teachers had given her the answers, she expected me to do the same – and I wouldn’t. This she found very difficult and as will be noted in Chapter Six where institutional course evaluative processes would see much of this difficulty placed squarely on my shoulders for failing to give her what she believed she needed. Phill was not alone in her beliefs about presentism; 69% of pre-service teachers either ‘definitely agreed’ or ‘agreed with reservation’ with the statement “Giving lecturers what they believe is the best way to be successful in this course” (FQ). According to Felicity (FQ, 2003), she “learnt that early on” and Lee (FQ, 2003) noted that this was “especially in assignments”. Several students (e.g., Lily, Susan, Rachel, Bob the Builder) noted that it depended on the lecturer as “some lecturers are more open” (Lily, FQ, 2003), or as Susan (FQ, 2003) noted: “Some lecturers appear more at ease, take it less like a personal attack if your ideas contradict theirs”. However, the perception remains clear, as Lily who had responded to the statement with “agreed with reservation” noted: “. . . to get top marks is seems the possible case” (Lily, FQ, 2003) or “depends on the lecturer but yes, at times, that is what is required of you” (Bob the builder, FQ, 2003).

Even when students are able to use the words and give lecturers what they think are the right answers, without the foundational beliefs and assumptions being changed, their original beliefs remain powerful. For example, Clarissa included an appreciative note to me at the end of her *Teaching of Science* meta-reflection:

Thank you ... I thoroughly enjoyed your teaching technique as I came to understand it ... I am looking forward to creating an enjoyment, excitement and interest in my students for the subject of science and of technology using the many different techniques you have taught us by. (MR)

However, in the next year while on final Year Three practicum, when asked about the initial influence on her planning for the class, Clarissa replied, “I think about what I enjoyed when I was at school.” (I). This comment also became one of those ‘hauntings’ referred to during the methodology chapter. Her comment seems to confirm all the literature which reports that initial teacher education makes little difference, or at best the difference is unpredictable and indirect (Berry, 2004; Cornford, 2002; Hatton & Smith, 1995; Kagan, 1992; Lowery, 2003; Zhou, 2002).

So far, this chapter identifies factors which sustain the old learning mold. These include a view of learning as entertainment, the accumulation of content, avoidance of discomfort and preservation of personal security. The final sustaining factor identified within the findings is a view of learning in terms of focusing on completion - either of tasks, or of the initial teacher education programme in general.

#### *Learning which focuses on completion*

Within this section findings suggest that pre-service teachers enter their initial teacher education programme with a belief that learning as well as accumulating content and notes to refer to later is equivalent to completion of tasks or courses. For example, some pre-service teachers such as Cassandra, Rachel and Lee recorded their intention and desire as:

just wanted to get the information and do what had to be done so I could teach  
(Lee, FQ, 2003).

When the pre-service teachers seek completion they are likely to accept things at surface value rather than to question the ideas which sustain them. For example, other pre-service teachers noted that previous approaches to learning resulted in “just accepting things for what they are” (Sally, MR).

Within the teacher education endeavour, an ‘old mold’ approach to reflection does not see it as purposeful or necessary. “[N]ot having a passion or clearly seeing the purpose for doing it” is a hindrance to developing as a reflective practitioner (Peter Piper, FQ, 2003) and a distraction to the process of becoming a teacher. For example, when Peter Piper wrote about aspects of the programme which evidence Clearwater Institute’s stated commitment to reflection, he noted:

It [a commitment to reflection] is obviously evident in courses but I think it is important to remember that we are here to train as teachers not reflective practitioners and attend papers such as the teaching of English not Reflective Practitioning.

This comment suggests a dichotomy between the process which leads to students being ‘trained as teachers’ and ‘trained as reflective practitioners’. His comment suggests that he did not accept the predominant view of reflective teaching espoused in the programme. His responses to what the focus of reflection might be register no ownership of the process, other than to say that one would reflect on “what the lecturer tells us to”. Findings indicate that when pre-service teachers viewed reflection similarly to Peter Piper, as a task to be completed, the less likely they were to mention self awareness and/or improvement of their teaching or learning as an outcome. This relationship is present both in data from the final questionnaires, as well as the gestalt like activity pre-service teachers completed the previous year during the *Teaching of Science* paper. In this activity pre-service teachers wrote down the phrases that came to mind when they saw a certain word – reflection. What is interesting to note from the analysis of this material is that the more emphasis a student put on the ‘doing’ or ‘process’ of reflection, the less likely they were to identify self awareness or development (as a potential outcome). This lack of personal and conceptual connection is indicated further by pre-service teachers such as Peter in that they:

- write in the second person [as captured in the phrase, “If you truly value your students and want to help them succeed you would reflect on your lessons to make them better”]
- seem to view reflection as a way to check if you are doing what is ‘right’ [“I constantly look at what I do with the idea that change may be needed and will go with an idea if 1) it’s right, and 2) I see the reasoning”]
- claim to reflect in their head [“I do not reflect in written form – I am however continually mentally reflecting in my head”]

As suggested earlier, writing in the second person may indicate less engagement or personal ownership of the process of reflection. Certainly through their writing these pre-service teachers distanced themselves from the concept and tended to respond from a sense of obligation rather than a response that has, as its core,

personal engagement in the teaching and learning process. Similarly, the use of reflection to check if what one is doing is 'right' reflects an attitude which views teaching, somewhat simply as 'doing the right thing'. This interpretation gains support from the fact that, for pre-service teachers in this category, the focus for reflection is typically, "Whatever the lecturer says". It appears for these students reflection is a process with a double-barred audit function: something you do because you have to, and which focuses on checking to see that you are doing what you should.

The tendency for such student teachers to 'reflect in their head' may indicate an unwillingness to commit to, or own their thinking (or non-thinking). While, one certainly may reflect in one's head – the result is not reflection which is open to any form of scrutiny or critique. It is possible that this stance also signals either a lack of connection or an abrogation of informed inquiry. Another possibility is that pre-service teachers believe what one associate teacher communicated to me in passing during a practicum visit. "I made sure to tell them (the student teachers) that great teachers are definitely born!" (Personal communication, 29 March 2004)

Teacher educators such as Shannon also noted that "*doing* reflection rather than believing in the power of such a process" (FQ, TE) is a hindrance to the development of reflective practitioners. Related to this approach is the tendency of pre-service teachers to seek ideas that 'work' for if 'they work' then they were seen to be acceptable and appropriate. Findings suggest that, for some pre-service teachers, this acceptance of things as they are and failure to own or engage with concepts remains. For example, 66% of pre-service teachers disagreed with the statement that "this teacher education course required me to understand concepts taught by the lecturers" (FQ). In relation to this idea, Felicity noted that she "needed to understand them but didn't necessarily go along with them" (FQ, 2003) and for Jeremy "It was possible to pass through faking understanding" (FQ, 2003). His stance is supported by Laura who also indicated that while "some assignments challenge me.... some are designed that you could get around them very easily without thinking if you wished to" (FQ, 2003). Making such a choice is indicative of the old mold of learning. Cassandra noted with interesting discrimination



between choice, ability and commitment that reflection was unlikely for “people who don’t, can’t or can’t be bothered to see the important point of it all” This discrimination suggest that there are those who *don’t* reflect, making a choice not to do so. It appears that pre-service teachers utilise similar levels of thinking but focus that thinking, either in the process of reflection or in its avoidance. Findings link this choice to not reflect with a refusal to see the importance of being reflective. When writing about the way the programme outworks Clearwater Institute’s stated commitment to development of reflective practitioners Susan noted that it is:

verbally promoted fairly consistently (i.e., need to be a reflective practitioner). At the end of the day, though it’s unlikely that students who refuse to see the importance of being a reflective practitioner will open their eyes enough to see it and therefore change their minds. (FQ, 2003)

Susan’s comment suggests some pre-service teachers choose to not “open their eyes enough to see it”, and “refuse to see the importance of being a reflective practitioner”. The next chapter provides insight into what factors may influence pre-service teachers to make different choices and to be involved in reflective learning.

Marika identifies an interesting link between the nature of the course and required understanding which appears to be different to expectations. She noted that understanding of concepts was definitely, without reservation, required in “those courses related to the curriculum” but others, “the lectures and assignments seemed to be totally unlinked therefore demanding no more than attendance” (FQ, 2003). Such comment raises further questions about whether it was the expectations brought to the courses which was key, or are there unwritten messages in institutional practices and languages which would support such a conclusion that “no more than attendance” was demanded? Chapter Six addresses this question in more detail.

End of programme questionnaires invited pre-service teachers to comment on the way they perceived their development as a learner throughout the three years. Pre-service teachers noted an increased reluctance to “take everything at face value” but rather a “desire to think for myself and question what I see and read” (Felicity,

FQ, 2003). Billinda (FQ, 2003) also noted that she “learnt not to take everything I read at face value”. This desirable emphasis on thinking is particularly challenging for many pre-service teachers as well as for those teacher educators who concentrate on seeking or communicating content. At the stage of their initial teacher education where pre-service teachers experienced *The Teaching of Science* paper, they place an overwhelming focus on accumulation of content. However, by the end of their initial teacher education they were very clear that such an approach was not helpful to the development of a reflective practitioner. For example, within the final questionnaire pre-service teachers identified courses which contributed most to the development of a reflective neophyte teacher. The one course which students consistently rated lowest across the four dimensions (overall experience, content, course approach, and assessment) was because there was too much content in the course and therefore not enough time to process it.

As previously indicated, the focus on completion of tasks, assignments, courses and programme is closely related to pre-service teachers’ claim that the old learning mold does not expect or require them to think. Findings indicate that for pre-service teachers, recollections of their previous learning experiences suggest that students were “Not able to explore or ‘think’ for ourselves” (Jill, MR) and Barbara noted that in previous approaches, students “don’t need to think” and compared such with the *Teaching of Science* course which had “. . . made me think. Even at times I did not like it, I realise that this is probably what those I teach will also feel” (MR). Greta differentiated between the teacher educator who “has an inspirational effect on the students” and leads then into “a deeper level of thinking”, and those who use a “talk and chalk approach” which leads to ‘shallow learning’ and coverage of ‘surface content’. This resonates with Joy who claimed to have “been challenged to become/maintain as a lifelong learner – making a conscious effort to do so; lots of reading and looking into things in a deeper way” (FQ, 2003).

As indicated previously, within pre-course questionnaires only one student from either cohort linked the success of the course to what they, the student, put into it. This contrasts sharply to the pre-service teachers’ views recorded in their meta-

reflections at the end of the *Teaching of Science*. This section has presented characteristics of the mold and the factors which sustain it in order to understand what is involved for those who wish to *undo the mold*. This process seems to be a co-requisite for being a reflective pre-service teacher and teacher. The next section focuses on the factors which ‘undo the mold’ of learning which inhibits the development of neophyte teachers who are reflective.

### **3. Factors which undo the mold**

While evident across the data, this notion of undoing a previous way of learning dominated the meta-reflections from the *Teaching of Science* course. 59% of pre-service teachers (n=39) included some comment or reference to this need to unlearn the way they were involved with learning. For example, Alibee shares the challenge of undoing a reliance on a transmissive approach and replacing it with an active, critical and reflective approach:

In all of my reflections on prior knowledge it would seem I have definitely brought along with me to Science lectures some distinct patterns of learning. I am finding it hard to unlearn these old ways and learn the new ways. I admit the new ways are not hard to understand, it is the unlearning of the old ways that is proving to be the most difficult. (MR)

Within the meta-reflections collected at the end of the second-year *Teaching of Science* course, pre-service teachers also identify a range of factors which contribute to what Peter Piper calls the need to ‘undo the mold’. It is to these factors that this section attends. This idea of undoing the mold was present irrespective of pre-service teachers’ attitudes toward the *Teaching of Science* paper. For example, Henrietta seemed generally unhappy with the outcomes of the *Teaching of Science* paper, noting that her “previous experiences with the subject of science have failed to be broken down and rebuilt” in the course and as a consequence she noted, “I do not feel a great excitement at the prospect of teaching science” (MR). On the other hand, while Marika did not appear overly confident about teaching science; by the end of this second year course she reported that she had the tools to develop that confidence. In the following section of her meta-reflection, Marika reflects back on an experience from a recent practicum. She noted:

One of the first ideas is that unless we have a significantly different experience then [we] will teach as we were taught. I have found this statement to be very true on my first practicum when I stopped in the middle of a science lesson that I was teaching and thought to myself “I am teaching exactly the way I was taught rather than teaching the way I have been taught to teach in this course”. This [is when] I realized that I would have to make an effort to interrupt this cycle of teaching the way I was taught. In order to do this I started to think about why we as prospective teachers so easily fall into this cycle. The main conclusion that I came up with was time exposure to a certain hidden curriculum. See all our school lives we have been learning how to teach science not through any particular focus on the teaching of science in the intentional or the operational curriculum but simply through the teacher’s style of teaching. This provides such great evidence for the belief that students remember more about the teacher than about the content the teacher taught. In my case I remember much more about how my teachers taught than the specific content that they taught me. This course has been what I believe [to be] my first step out of this cycle but by no means the only step. I think that it is very difficult to try and undo learning that has been enforced over 13 years of schooling in 6 months of lectures. I think the way that we undo this wrong learning is by unpacking it to [expose] the weaknesses of it but also to discover its strengths that can be adapted to our new learning. Then I think comes revision and practice. By revision I mean revision of what we have learnt about how to teach science in this course and then to make a conscious effort to put this learning into practice. (MR)

Marika’s reflective comment above identifies what appear to be important steps in the development of reflective teachers and introduces the factors which will be the focus for this section of the chapter. First, we note that Marika is aware that she “stopped in the middle of a science lesson” for this in-depth dialogue with herself. This process is referred to as ‘reflection in action’ (Schön, 1983) and by capturing this self-talk within a written reflection after teaching her lesson, Marika was able to be reflective about her reflection. As will be highlighted later in Chapter Six, it appears that this double reflectivity is an important characteristic of initial teacher education if pre-service teachers are to undo the old way of learning, or as Marika describes it, “step out of the cycle”.

Second, it is clear Marika wants to “undo” the way of teaching she experienced during her own schooling. She finds both the impetus and visualisation for this process within the teaching model experienced within the *Teaching of Science* course itself. The previous chapter’s findings indicate that pre-service teachers bring expectations about the teaching approach they hope to encounter with their teacher educators. However, there is also a clear indication within the findings that the teaching approach used by the teacher educator can be a powerful source of

learning. This appears to particularly be so when that teaching approach involves enquiry into, and engagement with, the expectations pre-service teachers bring to their initial teacher education. An additional sense of liberation from previous approaches to learning and teaching appears when reflective enquiry into the learning experiences within teacher education courses is also present. In this situation, the deliberate teaching approach from within the *Teaching of Science* course acted as a filter through which Marika was able to enquire into her own teaching. Two factors appear important here. One is that Marika herself realized that she “would have to make an effort to interrupt this cycle of teaching the way I was taught” (FQ, 2003). As indicated previously, within data from pre-course questionnaires, both the February cohort (n=19) and the July cohort (n= 20) present expectations which position the teacher educator as the one who will make changes, give passion or enthuse for teaching. In contrast, at this point of realisation, rather than externalising the teaching and learning process, Marika puts herself as the driver of the learning and change which must occur. As was noted in the previous chapter with respect to the degree of personal connection with the concept of reflection this notion of ownership of one’s learning is critical to the process of undoing the old way of learning and will, therefore, also be focused on within this chapter.

The second factor which is interesting and will be shown to be important is the observation that “in order to do this”, that is *interrupt* or *step out of this cycle*, Marika turned to asking the question, “Why?”. Asking this question is identified by LaBoskey (1994) as one of two critical characteristics for effective reflective teachers. The findings indicate that a focus on higher order thinking within courses is a key factor for developing a reflective practitioner. For Marika, the “main conclusion that I came up with” is not content from the *Teaching of Science* course – but draws on perspective courses such as *Ideals in Education*, also a second year paper which included engagement with ideas of different types of curriculum – including the hidden curriculum. Marika made connections between content from several courses and her own teaching practice with the result that she sees the influence of the hidden curriculum as one reason why “we, as prospective teachers so easily fall into this cycle.”

The structure of the following subsections uses these factors identified by Marika: taking ownership of one's learning, being involved in reflection which is iterative and reflexive, and the teacher educator as model.

### **3.1 Becoming Professional: Ownership of learning**

A key change in this process of 'undoing the mold' relates to the degree of ownership which students hold of the learning process. Pre-service teachers, who identify as reflective practitioners, also demonstrate two other characteristics. First, they write in the first person indicating ownership of the reflective process for its contribution to their personal growth and professional practice. [as captured in phrases such as –“. . . I can see it is a valuable tool”; “because I have realised”; “it's been an ongoing learning that is seeing some fruit”; “because I own my actions, reflect and continually look to improve”; “I reflect in all areas of my life.. I have explored my own philosophy in teaching and the theories which underpin it”]. Second, as well as including questions related to what is taught within their definitions of the reflective practitioner, they tend to consciously target the purpose or ideas behind teaching actions by asking “Why?”. [as captured in phrases such as –“someone who always asks the Why, How? What if? Questions”, “a person who looks at their practice and asks why they do what they do”, “looks at the ideas behind actions”, “thinking about what we do, why we do it . . .”]

A comparison of beliefs from before and after the *Teaching of Science* course identifies an interesting change. Within the beliefs and expectations registered in their pre-course questionnaires, only one pre-service teacher from the two cohorts (n=39) linked course outcomes with personal learning effort. On the other hand, pre-service teachers' end of course meta-reflections focused strongly on learning (56% of meaning units). The two sub-themes within this learning focus relate specifically to 'being an active learner' (36%) and the related 'ownership of learning' (20%). An interesting, and appropriate link between these dimensions and being professional is made by Tanya who observed that over the three years of her initial teacher education, she:

became much more professional in my practice of being a teacher. Hold myself accountable to others. Mature outlook on my role as a learner. (FQ, 2003).

There is an interesting relationship here between the way she views her role as a learner and her commitment to being professional in her practice as a teacher. An apparent complex inter-relationship between “becoming professional”, “being teacher”, “accountability”, and her “role as a learner” surface from Tanya’s observation. It appears that as pre-service teachers understand their own learning, they will better understand the relationship between teaching and learning. It is as if, rather than externalising the teaching learning process, they inhabit it. They develop an intrinsic and lived experience of *being* a teacher. Tanya is not alone in this. Other pre-service teachers’ responses seem to indicate that the clarity of their sense of call to teaching has significant implications for the way they approach learning. For example:

In Year one I was not so focused and I didn’t have the drive to get as much out of the course as I should. As soon as I knew that this was where I was meant to be and accepted it, which probably happened in Year two, I had a love for what I was learning and still do. (Laura, FQ, 2003)

and,

From Year two to Year three I have realised the importance of being a teacher and have really tried hard in class and on assignments. (Louisa, FQ, 2003)

Finding a connection between factors such as one’s image of self as teacher, and ownership of learning is not surprising given LaBoskey’s (1994) research into identifying characteristics of neophyte teachers who are reflective. As illustrated by Tanya, it is also inherent to the notion of being professional; a subject about which I have written elsewhere (Norsworthy, 2003) and which is relevant in relationship to this finding. Etymologically, inherent within ‘profession’ is a sense of ownership and of commitment to the learning which is owned. As indicated in Chapter Two, being “professional requires a personal commitment to the *telos* or *purpose* of the professional activity” and such a commitment “involves moral or ethical purpose” (Hall, 2001, p. 281).

Hannah noted the power of developing this owned philosophy during the *Teaching of Science* course, noting:

During the process of learning to be a science teacher it is important to develop a philosophy and a strategy behind what you are going to teach. Then you have a good basis which you can go back to; especially when you think “Why am I teaching this at all?” (MR)

Such a position is very different from the initial beliefs and expectations which pre-service teachers brought to the *Teaching of Science* course. It appears that for the majority of pre-service teachers (87%) a significant shift in the way they relate to learning occurred. In moving from passive consumer of knowledge to one who takes ownership of learning, most pre-service teachers tend to reposition themselves across one or more of three interrelated domains. First, in terms of their attitude to learning; second, in terms of their relationship with learning or open-mindedness, and third, in terms of the knowledge and awareness they have of themselves. These domains are the focus for the next chapter sub-section.

As well as professional accountability, pre-service teachers see a role for reflection in personal accountability. For some students such as Sharon, the purpose of reflection is to “honour God and Scripture” because “we are responsible teachers of truth”. In this sense there is a role for reflection to keep teachers accountable to their own standards and moral codes. A scholarly accountability identified by (Marika, FQ, 2003) suggests that if “teachers do not reflect they are then not being good stewards of unconsciously held knowledge”. The idea here is that through the process of reflection, this unconsciously held knowledge becomes part of consciously held knowledge and is then available to critique, celebrate, or share.

### **3.2 Changing attitudes: increasing teachability**

The findings suggest that part of taking ownership of learning involves pre-service teachers’ personal repositioning in relationship to learning. This involves what might be called becoming teachable, or developing an attitude of teachability. Within the data, there is a definite sense of process and development which is often captured by pre-service teachers in the idea of ‘becoming’. Someone who is teachable has both the disposition and skill to seek and receive feedback through, and from, a range of processes such as critical reflection, revelation, professional inquiry, dialogue, and reading. For Jane, who noted the importance of remaining teachable, this meant “learning from the best and always being open for



improvement” (FQ, 2004). Matched with an ability to be critical and discerning, this openness to which Jane refers is a necessary characteristic of an inquiry stance and includes components of what Dewey (1910) calls open-mindedness. For example, Marcel and John both identified a change in attitude throughout their initial teacher education.

Marcel: ... become more humble realising that there is much I do not know. (FQ, 2004)

John: I think that over the time I have been more open to advice and acting on this. (FQ, 2004)

Another pre-service teacher, Rachel, noted that:

Part of the developing process for the teacher is to be teachable. The old saying is that if you are not teachable then how can we expect our students to be? However, we must not always assume that our students will be teachable. Children have their own set of views and will make a point of proving them, so we must be sensitive to these and work at cultivating them into teachable moments (MR).

As is hinted at within Rachel’s comment above, findings suggest that the attitude of teachability is linked to the process of becoming an active learner. According to Lily, this attitude of teachability was something which Clearwater Institute espoused and teaching staff emphasised. Freda and Lily provide examples from different stages in their teacher education experience about this shift toward active learning. Freda, writing at the end of *The Teaching of Science* course, and Lily from the final questionnaire, provide insight into aspects of what it means to be an active learner:

Freda: this whole course has lead me through the progression of how to be a true active learner that does not just take information and dump it somewhere or forget it, but truly begins to nut out ideas behind information (MR).

Lily: You encourage active lifelong learning through reflection and emphasis on importance of teachability. You ask questions which push us to think further into the areas of investigation and also you provide reading to push our thoughts beyond what was in lectures. [You] place high expectations on us to push us into further thought and challenge us to achieve well. Questioning is a major thing which pushes us to think more innovatively and to be more active learners. (FQ, 2003)

The notion of being a ‘true active learner’ is linked to the process of “nut[ting] out ideas behind information”. In other words, the active learner is less likely to be a passive recipient of information, but rather, one who seeks to understand and challenge ideas beneath the surface information. Things which Billinda “once saw

as being simple and just never thought twice about” were actually quite complex. She described her new awareness of this fact in terms of being wiser. Previously, Marika’s theorising indicated ownership of influences which might hinder her stepping out of the old learning cycle. Doris captured a similar process when she commenced her meta-reflection with the following observation:

My thinking has been challenged by what it means to teach Science. I came into this course expecting to be dazzled by content and teaching strategies but instead *I have had to formulate my own ideas* about the teaching of science. Although, I have not been left to my own devices, as you have gently prodded and guided us into seeing the huge potential within science **for ourselves**. This has been good for me and it has given me a different perspective and a new insight into the nature of education. (MR, emphasis added).

What is interesting is that at the end of the *Teaching of Science* course, Doris describes her initial expectations of the course in terms of being “dazzled by content and teaching strategies.” (MR) I wondered to what degree this was an accurate representation of her recorded views at the beginning of the course. To what degree did this self-awareness match what she wrote some 18 months earlier, in her pre-course questionnaire? In response to an invitation to describe three things ‘you hope are in this course’ at that time she had written:

increase my knowledge of what is involved in teaching science; feel confident in this and develop strategies to make the subject interesting! Enjoy the subject and the assessment so that I can see its necessity. (PQ)

and, in the question related to characteristics of ‘an excellent course’ she identified the following (FQ):

well balanced lot of information that is applicable to our lives and teaching; appropriate assessment; actual experiences where we can put things into practice

While an emphasis on knowledge, information, and teaching strategies is present what is interesting for further consideration is that she claims the teacher educator:

gently prodded and guided us into seeing the huge potential within science *for ourselves*. (MR)

Her pre-course questionnaire hoped that the course would result in the teacher educator making her “see its necessity”. Perhaps the fact that students actually had to think about what they hoped would be in the course was a contributing factor to the later ownership of learning from the course and its approach. As will be further explored in Chapter Six, pre-service teachers identify experiencing the type of

learning or leadership expected of them as classroom teachers as an influential factor in their own motivation to learn.

We have learnt to teach children to become problem solvers in that they become responsible for their learning. Through Learning and Teaching [a year one course] I have learnt to get involved in questioning each other and then them becoming leaders. I have also learnt to teach children about the importance of getting answers - focusing on the process rather than product. (Jonny Wilkinson, FQ, 2003)

Part of this focus on “process rather than product”, to which Jonny refers, is a developing open-mindedness and engagement in and with higher order thinking.

### **3.3. The importance and role of reflective thinking**

Findings in the previous chapter indicate that the old learning mold is characterised by the absence of the apparent need to think, and, a focus on outputs, presentism and a single perspective which maintains such a mold. In this section of the chapter, attention highlights the importance pre-service teachers’ place on the need to engage in higher order, reflective thinking in order to undo the mold. Such engagement seems to relate to the notion of being more open-minded and the related ability to work securely with multiple perspectives.

#### *Open mindedness*

Jonny encapsulates this characteristic when writing about changes which have occurred for her over the three years of teacher preparation:

I have become more open to other opinions and worldviews. I have been able to think outside the ‘square.’ (FQ, 2003)

Again, Cassandra records in pre-course questionnaire a hope that she will “be told what she needs to know” (PQ). However, at the end of the *Teaching of Science* course she noted that the course, and particularly the writing of a rationale for teaching science, had led to “the development of a wondering attitude.” The writing of a rationale is one factor identified with the potential to change pre-service teachers’ approach to learning. It involves both higher order thinking and ownership of that thinking. Its influence is signalled by Peter Piper who felt that “one of the keys to addressing these issues [relating to the old mold] is having an effective rationale which when you read it instils a passion and fire in you for that subject” (MR).

In keeping with Dewey, findings link the process of *reflective thinking* with a cognitive process very closely tied to one's beliefs and identifying the grounds which support those beliefs. For Dewey, reflective thought involves deliberately seeking "the ground or basis for a belief", and, examining "its adequacy to support the belief" (1910/1997, pp. 1, 2). Similarly, pre-service teachers link development in open-mindedness with clarity of personal beliefs. It appears that when a student becomes "stronger in the belief system that I follow, safer in the knowledge system that I adhere to" (FQ) a concurrent change occurs in their open-mindedness as they become "stronger in my desire to listen to others' points of view" (Felicity, FQ, 2003). The findings indicate that over the three years of their initial teacher education, there appears to be significant growth in students' ability to interact with multiple perspectives, while remaining secure with their own stance. For Tania (FQ, 2003) this was a developmental process in which she:

gained more knowledge each year which gave me a foundation for the learning gained in each consecutive year . . .

and for whom,

the teaching strategies the lecturers used in our lectures encouraged us to open our minds, critically think about the issues proposed and examine our own thoughts, feelings, opinions and worldviews in depth.

For Tania, the ability to work with multiple perspectives results from the lecturers' teaching strategies. Felicity's comments above suggest that both awareness of, and adherence to, a personally articulated belief system work together with an openness and willingness to interact with others' views. This finding is in keeping with Edlin (2002, p. 3) who identifies "working through the possibility of change in relationship to and consistent with one's core beliefs or foundational worldview" as one of three significant factors which increase the likelihood of transformative learning.

#### *Reflection: increased awareness*

Findings identify two other interconnected reasons why reflection is important. Both relate to aspects of increased awareness. First, for both pre-service teachers and teacher educators, reflection increases awareness of what is happening. Deliberate focusing enables one to know more accurately about what is happening – compared to what one thinks might be happening. Second, focused attention as

described above also enables the thinking and assumptions in the actions to be identified, and then critiqued. Increased awareness of assumptions means, that where necessary, changes in thinking lead to changed practices. These, in turn, have a “major effect on children’s learning” (Johnny, FQ, 2003). Increased awareness of why something is “done in such a manner” (Sue, FQ) can lead to identifying “what else we need to know” (Lily, FQ, 2003). Also, when you develop or try new strategies it makes sense to know what the strengths and weaknesses are in order to make future decisions about the appropriateness for different strategies. Marie Antoinette (teacher educator) claims that it is through reflection that one “sees clearly what is” and can then check to see that there is alignment between what was planned, thought to have occurred and that the teaching “actually did meet the expected outcomes.” (FQ)

The tendency to accept things as they are is characteristic of the old learning mold. Pre-service teachers who exhibit open mindedness and engage in reflective thinking are less likely to demonstrate this tendency. The reflective process enables pre-service teachers to see the complexity behind things once perceived “as being simple” and about which Billinda “never thought twice” (MR). When undertaken by experts, teaching seems simple and straight forward. However, once pre-service teachers become reflective, a different awareness emerges and open-mindedness can involve scrutinising taken for granted actions. As Joy noted: “if you have to think about why you do something, then you can change, grow, improve, otherwise you will just keep doing it the same way as you always have, or the same way you have seen it done.” (FQ, 2003). Findings point to a growing awareness of the need to bring these beliefs to the surface. Such action is evidence of a form of accountability which Marika (see p. 145) equates to stewardship. Through the process of reflection, this unconsciously held knowledge becomes part of consciously held knowledge and is then available to critique, celebrate, or share. These changes signal the transformative learning which, according to Cranton (1996), occurs as a result of the reflective process revising the beliefs which shape one’s actions. The following quote is indicative of an important consequence for pre-service teachers’ motivation to learn of this changed approach to learning:

Over the three years there has been a growth in the way I view things in lectures. I don't necessarily believe everything that is said but now see that certain things come from a bias. So I have become more able to critique things. The ability to formulate ideas has increased. Have a desire now to go on and continue to learn. Have a desire now to better myself for the benefit of those I teach. (Tex, FQ, 2004)

In the above quote Tex makes a link between personal growth and its motivating effect on her reason to learn. Her increased ability to critique and formulate ideas motivates her to “better herself for the benefit of” her future students. This linking of reflective thinking to children’s improved learning and catering for their needs is a characteristic of professional responsibility.

*Reflection: Meeting professional responsibilities*

Findings indicate that pre-service teachers who registered a strong conceptual connection with reflection view it as a way to meet professional responsibilities [as captured in phrases such as “be sure we are catering for students’ needs” and “be responsible”], and to be transformed or emancipated [as captured in phrases such as “be set free from what you have always done, or seen done” and “change thinking/assumptions about the way things are done”, “change, improve, grow” “continual improvement, developing and trying new strategies”].

Similarly, teacher educators link reflection to effective teaching. For example, Marion who posits the end goal of reflection as becoming a wise teacher clearly argues that all of this development is to occur “in ways that enhances the effectiveness of the teaching and learning act.” (FQ, TE) Rebecca similarly views the purpose of reflection to be “always improving the effectiveness of teaching practice.” (FQ, TE) This sense of ownership for one’s learning and engagement in reflective thinking leads to open-mindedness and further motivation to learn. They are also factors which ‘undo the mold’ as demonstrated by Laura who links commitment to both the profession and personal growth in her claim:

If teacher’s hearts are truly in their profession and the well-being of the children they will be seeking to learn and grow and be more reflective. (FQ, 2003)

Reflection leads to increased self-awareness and how our ‘way of being’ influences teaching and learning. Findings show that personal growth as a result of reflection relates to improved understanding of both oneself as person, and also, of the

teaching and learning process. Reflection enables personalisation of learning. It appears that it is this personalised learning which translates into improved experiences for one's future students. It "shape[s] or mold[s] practice, and self as professional" (Lily, FQ, 2003).

The next section of this chapter presents findings which link pre-service teachers' view of the teacher educator's role with this personalised learning and its consequential open-mindedness.

### **3.4 Reflection and relationships**

Findings indicate that a key factor in developing ownership of learning involved a changed view of the teacher educator's role. Initial course expectations tended to view the teacher educator as the powerful one who would either 'give', 'make' or initiate development of the necessary attitudes. Some students presented a view of the teacher educator as powerful and able to: "create an attitude that sees the value of science to primary school" (Cassandra, PQ) and to "increase my passion for the subject" (Marika, PQ). Pre-service teachers did not relate their expectations that the course would equip students to teach science competently and confidently" to their role as learner. This is another example of the students externalising the teaching and learning process where the responsibility for success is the teacher's, rather than their own responsibility. At the beginning of the *Teaching of Science* course, for pre-service teachers such as Cassandra, Marika and others, the influence, responsibility and expectations are of the course and lecturer to bring about changes - "to make" them more passionate about science or to inspire, enthuse and motivate.

However, by the time these same pre-service teachers are at the end of their initial teacher education programme they are more likely to attribute such characteristics to the lecturer's teaching approach with the recognition that they, as learners, need to be responsive and engaged. For example:

Doris: . . . encourage us through assignments to be inquirers. (V, 2003)

Pippa: . . . have found that the lecturers stimulate us in their own lectures to think outside of the box and apply learning over different areas. (V, 2003)

In the final questionnaire, open questions invited participants to give some insight into how they had changed as learners and teachers. Almost 40% of the participants mentioned that their confidence had grown. Noteworthy is the fact that the overwhelmingly attribution given was changing relationships with lecturers, fellow student and themselves. Furthermore, pre-service teachers identify the impact of this change in relationships on other factors previously identified in this chapter. First, the changed relationships enabled challenge of ideas and self-belief. For example, Rachel noted that relationships with staff, peers, and self had seen an increase in “my confidence, teachability and understanding of students.” (FQ, 2003) Susan gives a clue to how this may work when she links increased confidence in herself to “growth in relationships with lecturers” which results in “approaching lecturers for help in course requirements more readily” (FQ, 2003). Other factors linked to growth in confidence by participants include teachability, time, lessons learned from challenging experiences during practicum, courses or assignments which involved presenting your own ideas or giving your opinions, lecturer feedback. The next chapter attends to many of these factors. For Jeremy the keys to developing teachers who are reflective learners are found:

. . . from particular papers but in the most part comes from the lecturer's encouragement and examples. Examples that lecturers have given from their own teaching experiences motivate me to try and think innovatively, the passion that the lecturers have for teaching and learning is obvious and infectious. (V, 2003)

The importance of the teacher educator's characteristics and role is a major focus for the next chapter.

#### **4. Chapter summary**

Findings indicate that some factors within initial teacher education experiences are more likely to ‘break’ the old way of learning. This includes a change in expectations for the teacher educators’ role. Findings also demonstrate the importance of reflective thinking. Key factors involved in undoing the old mold of learning appear to be reciprocal in nature. For example, a key factor in this process is to take ownership of one's own learning. This both requires and leads to



increased teachability, open-mindedness, a willingness to engage in higher order thinking and a changed understanding related to the role of the teacher educator. It will include asking the “Why?” question and the development of a personal rationale or reason for teaching. Similarly, the process of reflective thinking leads to and requires open mindedness and a sense of professional accountability. Both of these are encouraged through respectful relationships with teacher educators, peers, and self. The sense of personal connectedness identified in this chapter and a link to characteristics of one who is professional both appear critical to “developing a context within which to hang learning that is personal to my own philosophy” (Mary, FQ). While Mary may have a personal and philosophical context in mind as a framework for her learning, the institution in which initial teacher education occurs is also a key factor in the development of neophyte teachers who are reflective and committed to active learning. As such, the institution as a reflexive space is the focus for Chapter Six.

## Chapter Six

### The Institution as a Reflexive Learning Space

#### 1. Introduction

Findings reported in the previous chapter emerge in the main from data generated within the *Teaching of Science* course. This chapter is focused more on the broader pre-service experience; including the way a tertiary institution and its curriculum helps to shape pre-service teachers' learning experiences, and consequently, their perceptions. Initially, Chapter Five presented findings which identify the characteristics of a learning mold which inhibits reflective learning. Then it focused on characteristics which pre-service teachers perceive undoes the inhibiting power of such a mold. However, neither of these two components exists in a vacuum. They are embedded and implicated within an institutional context which itself is not isolated from broader influences. Consequently, this chapter presents findings related to the institutional context for the course work referred to within the research question at the heart of this study:

How does pre-service course work contribute to the development of the reflective professional?

Initially, the chapter considers how the teacher education programme structure may have unexpected influences on pre-service teachers' and teacher educators' experiences. The design of the programme structure is an expression of assumptions about the institution's beliefs about what develops reflective professionals. The second section of this chapter presents findings about Clearwater Institute's particular approach to this development. These relate to expectations about: questioning and thinking, linking teaching approaches to intentions, and finally, beliefs about assessment. The third section of the chapter presents findings related to the personal influence of teacher educators – identified toward the end of the previous chapter as a significant influence. For some pre-service teachers, this influence is captured as one who 'transmits' learning, while

others view teacher educators as motivational models of what a reflexive teacher looks like. The final chapter section presents findings related to the institution's perceived 'ways of doing things'. These ways of doing things contribute to the hidden curriculum and provide a contextual framework within which teaching and learning occur. Consideration of findings for each of these sections is in terms of its relationship to reflexive learning. The chapter concludes with a summary of findings related to perceptions of the institute as a context for such learning.

## **2. Teacher Education Programme Structure**

This first section considers the teacher education programme structure. A distinctive feature of this section is the inclusion of the author's own experience with this structure and the ramifications for pre-service teachers' expectations of course work. In New Zealand, institutions that offer initial teacher education programmes are required to participate in rigorous and comprehensive approval processes with the New Zealand Qualifications Authority and New Zealand Teachers Council. Both of these statutory bodies provide criteria against which a programme is evaluated. As is expected, they are not immune to influence by educational 'bandwagon' ideas, such as commitment to 'learning outcomes', 'competencies', 'flavour of the month' approaches to discipline or pedagogical content knowledge. Engagement with such ideas within the accreditation process tends to influence a programme's final 'shape'. The accredited programme as experienced by teacher educators and student teachers will itself be further influenced by contextual, geographical, and political influences. Some of these influences and the bureaucratic practices which communicate them can contribute to the perpetuation of a transmission model of teaching.

A finding from Kane (2005) indicated that while on the one hand the opportunity to engage in different modes of teacher education exists, the structure of primary teacher education programmes "reflects more evidence of similarity through custom and practice, than it does diversity" (p. 219). Typically, programmes have three strands which, though named in a variety of ways, include a focus on ideas and perspectives, a focus on teaching and curriculum and a professional practice or practicum strand. Clearwater Institute's programme reflected this pattern and

the three strands in existence at the time of this study were described as: An Educational Perspectives strand, a Teaching and Curriculum strand and a Practicum strand. The perspectives strand included: History of Educational Ideas, Sociology of Education, Educational Psychology, and Multiculturalism. The Teaching and Curriculum strand included: working with the New Zealand Curriculum, Learning Theory, Planning, Assessment and Evaluation, Teaching learners from diverse backgrounds or with diverse learning needs. And, the Practicum strand is self explanatory. Typically, pre-service teachers clearly view these strands as having different and varying relevance to their lives as teachers. The reinforcement of these delineations appears to shape definite expectations for courses – expectations which are not always helpful.

The paradigmatic influence of this strand division became apparent after the *Teaching of Science* paper with the February cohort. As a result of pre-service teachers' programme evaluations I was called to meet with the Associate Dean. Of concern was the fact that I was teaching this Teaching and Curriculum paper as if it were a perspectives paper. Lynelle had captured this concern in her course meta-reflection:

I don't feel that in this course we have looked at the teaching of science. I feel we have done more of a perspectives course . . . (MR)

As indicated earlier, the expectation(s) that a course title or code set up for students is not always helpful. Felicity reported a difficulty with the course and reasoned that she had taken “. . . too much from the title of the paper and expected it to be like the other teaching papers that I have studied over the last two years” (MR). Later in the same reflection she wrote a note of thanks indicating her struggle:

. . . but I know that I will be a better teacher for your input. You made me think even if at times I did not like it and I realise that this is probably what those I will teach will also feel” (MR)

Instead of ‘giving ways to teach science’, students were invited to interact with multiple perspectives, to ask the question “Why?” and to develop a rationale which shaped their teaching in this curriculum area. However, an unexpected result of the strand structure was to reinforce a theory/practice binary, and, consequentially, my approach did not fit students' expectations. My journal of the

time captures a very real sense of the emotional labour involved in reflexive teacher education – it was very draining.

What is happening here? . . . Why are they so focused on ‘entertainment’ and notes on the board to copy down? This doesn’t make sense. How can these students not want to learn? They are preparing to be teachers!!! How could teachers not want to learn and inquire? Especially teaching science – that is inquiry! . . . Maybe I should just give them what they want – notes on the board, recipes for experiments – I just can’t do that. I so want to make a qualitative difference for children - to see inspirational, transformative education – not time filling isolated activities. . . . This is part of who I am, my ‘identity’ and the motivation and strength to be an educator flow from these – as I read in *Courage to Teach* - if I deny this, I lose the heart to teach. (PSJ)

At the end of the year the Associate Dean provided me with the records kept relating to interactions around a few students’ feedback regarding my approach to the course. Of interest to this chapter with its focus on the institution as a reflexive context for teacher education is the way in which the July cohort had been “warned” about my pedagogy. The records showed that the Academic Dean had:

. . . briefed 2B to encourage a positive attitude towards making the course work, taking initiative for their learning, approaching the course lecturer should there be any problems. Warned the students that the pedagogy employed by Bev is different from that which they might have experienced in other curriculum papers, that is, more constructivist in discovering meaning for themselves and less explicit in telling of content and teaching strategies.

This well intentioned “*warning*” to pre-service teachers draws attention to the influence of programme structure in setting of expectations.

This section highlights the impact of expectations which programme structures as experienced by pre-service teachers and teacher education elicit. What appears to have been difficult for pre-service teachers, and therefore for me, was the fact that the line between perspectives courses and teaching and curriculum studies courses was so entrenched. In this instance it provided a barrier and hindrance to reflexive learning. These factors cannot be ignored and the section has highlighted issues which will be discussed in Chapter Seven.

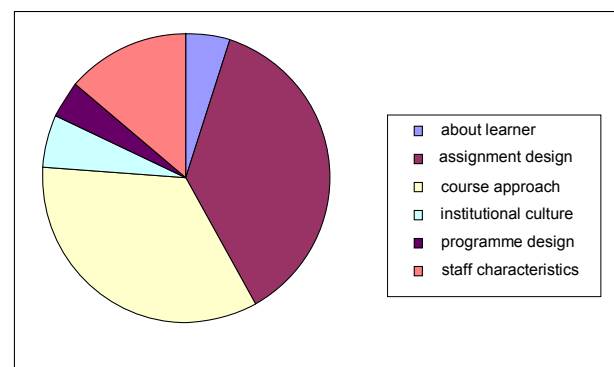
### 3. Clearwater Institute's Approach to Learning

Pre-service teachers recognise that the institute not only has a particular way of structuring their teacher education programme, it also has a particular approach to learning and teaching. Influential in this section of the chapter, are findings drawn from data generated from responses [pre-service teachers = 38, teacher educators = 9] to the following real life vignette:

Recently Clearwater Institute was approached to provide a lecturer to speak to a visiting group of high ranking Singaporean educationalists. In Singapore there has recently been a mandated change in the dominant approach to teaching - from a transmissive style to a more active learning style. The idea was that one of the Clearwater Institute's staff members would speak to this prestigious group for a short while about "What we do here at Clearwater Institute to ensure that the teachers who graduate from this place are able to involve students in active learning and to develop innovative thinking." If you were to address the group on this question, what would your main points be?

Teacher educators cannot assume that pre-service teachers experience our plans as intended. Inviting them to respond to this scenario gave pre-service teachers an opportunity to record the sense they made of our intentions (the focus of this study). Throughout this chapter section, teacher educator views are included either as contrasting or confirming of those from pre-service teachers.

A dominant theme (74%) within the Year Three responses to the vignette related to Clearwater Institute's approach to learning. This included an emphasis on relationships, linking of approach to intentions, personal connection, creative and higher order thinking, and consideration of multiple perspectives. Within this dominant theme (CI's approach to learning), and as indicated in figure 8, pre-service teachers identify two factors which they perceive to contribute to the development of the reflective practitioner substantially more than others. These are the course approach and assessment design.



**Figure 8: Programme composition as institutional commitment to development of reflective practitioner**

Other minor themes identified to be important included characteristics of the learning context (14%) and characteristics of teacher educators (12%) and these are included in subsequent sections in the chapter.

### **3.1 Positive course approach characteristics**

The development of a reflective practitioner is enhanced when course work includes two particular, but interrelated, experiential components within the course approach employed by teacher educators. The first of these relates to the use of higher order questions and their ability to enlarge the breadth and depth of thinking while supporting the pre-service teachers in taking ownership of their learning. The second relates to course work which links the learning activities to programme intentions such as developing active lifelong learners and reflective practitioners.

#### *Links between questions, examined assumptions and ownership of learning*

Pre-service teachers note a connection between the teacher educator's use of questions and the desire to have them think critically or engage with multiple perspectives. Over 76% of responses (n=38) referred to the inclusion of creative and higher order thinking and the use of questions to challenge existing assumptions, beliefs, and practices. For example, Tania noted:

The teaching strategies the lecturers used in our lectures encouraged us to open our minds, critically think about the issues proposed, and examine our own thoughts, feelings, opinions, and worldviews in depth. (V, 2003)

This use of questions is seen by pre-service teachers as an invitation to personal engagement and connection “so that we develop our own thoughts instead of being spoon-fed” (Daisy, FQ, 2003). This notion of ownership of “own thoughts” is a recurring theme throughout the study and appears crucial to developing as a reflective practitioner. While engaging with challenging questions in course work is acknowledged as much harder than being given answers, it is also valued for its ability to “come to grips with things!” (Hope, FQ, 2004) and “push us to think further into the areas of investigation . . . and what was in lectures” (Lily, V, 2003). As is noted later in this chapter, challenging questions are also linked by

pre-service teachers to a perceived institutional expectation to be creative, innovative and risk takers.

The course which ranked highest (91%) for its contribution to the development of reflective practitioners across the other factors (i.e., allocated most As for course overall experience 71%, course content 65% and course approach 77%) was an Educational Perspective Strands course, *Multicultural Education*. Within this course, pre-service teachers are required to engage with important questions of personal identity. Pre-service teachers highlighted: that the “cultural identity essay” and asking the question “Who am I?”, “promoted high thinking and focused on attitudinal change”. They consistently report the course to be transformational (another example of a close personal connection). In fact, in terms of contribution to developing reflective practitioners for a courses ‘overall experience’, the top three courses identified by pre-service teachers as most likely to contribute to the development of reflective practitioners were all Educational Perspective Strand courses rather than Teaching and Curriculum Strand courses. It is interesting to note the size of the difference in pre-service teachers’ rankings for these three courses: *Multicultural Education* (71%, EPS course, SD = 0.7); *Research for Teachers* (46%, EPS course, SD=0.5) and *Sociology of Education* (46%, EPS course, SD= 1.2). These were closely followed by: *Maori 1* (44%, EPS course, SD=0.8), *Learning and Teaching* (44%, TCS course, SD=0.6) and *Teaching of Science* (43%, TCS course, SD=0.8). Pre-service teachers such as Lesley, are very aware that, wherever the requirement for reflection comes, it is the “. . . theoretical papers which provide a background to be able to think about what you do and why” (Lesley, FQ, 2004). The EPS papers particularly appear to be valued for this reason. However, as is indicated by the Standard Deviation scores, some courses gained a large spread of rankings.

Pre-service teachers also agreed on courses which they perceived did not contribute to developing reflective practitioners. One course, *The Teaching of Music* stands out with 31% of pre-service teachers consistently ranked the course overall experience, content, approach and assignments as making no contribution



to the development of a reflective practitioner. (see Appendix K for further detail and graphs).

What is of interest to this study is the degree of consensus regarding course content. For example, several pre-service teachers such as Gary reported that *The Teaching of Music* course involved “. . . so much content that reflection came down to the individual. I did, many didn't” or “. . . had too much content and therefore little or no time for reflection” (FQ). Though it appears they seek content, pre-service teachers recognise that, by itself, without personal engagement it is a hindrance to the development of reflexivity.

#### *Links between the teaching approach and intentions*

Within the *Teaching of Science* course, pre-service teachers designed and conducted investigations. These experiences were designed to develop insights about teaching, learning, resource management, and the development of scientific concepts. This approach, which plans for *experiencing* the target learning rather than learning *about* it, is the second experiential component identified by pre-service teachers as critical to the development of reflective practitioners. This idea surfaced in earlier data from pre-service teachers' meta-reflection for the *Teaching of Science* course. For example, Natalie had reported, “To experience this paper on teaching of science from a student's point of view was very beneficial to me” (MR). Jane noted the advantage of course work in which “pre-service teachers are prepared to be able to teach in a way - by being taught in that way themselves” (FQ, 2003). This resonated with learning intentions for the *Teaching of Science* course. Another pre-service teacher, Cristal, also noted this link between the teaching approach and the intentions:

Throughout this paper I have noticed that a lot of the extremely valuable material we have been taught has been done through the hidden curriculum. I believe that a lot of what we have been taught has not been about what we have been taught but about how. For example, it has been exciting and interesting doing the many different experiments such as the candles, pH, seeds, straws, dips etc and although I enjoyed them and learnt a lot from the experiments themselves I learnt much more when I viewed it from the teaching perspective of how to teach it and the variance of styles we can use. (MR)

This course approach which engaged the pre-service teacher as a student and then involved revisiting the experience from a teacher's perspective contributes to active learning as well as the development of an image of self as teacher. Another valued aspect of Clearwater Institute's teaching approach relates to assignment design. In this regard, pre-service teachers appear to have definite ideas and the next section focuses on these.

### 3.2 Assignment design

Pre-service teachers identified assignment design as one of two major contributors to their development as reflective practitioners. This appears to be so in terms of both positive and negative factors. Interestingly, when students were asked to rank different course assignments for their contribution to the development of a reflective practitioner it was a course by a lecturer, described elsewhere as someone who "set up her courses with reflection in mind" (Jeremy, FQ, 2003), which gained the highest percentage of top rankings (59%) [A=significant contribution, B= some contribution. C= no contribution D=not sure. See Appendix L for full details]. This lecturer used weekly reflective journals which were collected regularly and given extensive feedback which challenged thinking and made personal connections in terms of pre-service teachers' image of self as teacher. The next two courses ranked highly for the degree to which the course assignments contributed to being a reflective practitioner were *Research for Teachers* (44%, EPS course) and *Teaching of Science* (41%, TCS course). Both of these courses were taught by the author and involved higher order thinking such as synthesis and evaluation, pre-service teachers taking responsibility for their learning through reflective inquiry while also providing the opportunity to investigate a particular topic of personal interest. As will be noted later in the chapter, this personal connection appears to be critical to the development of reflective teachers and learners. When the top two rankings were considered (i.e., A and B), 96% of pre-service teachers ranked the assignments from *Research for Teachers* and *Teaching English 1* courses as "most likely to contribute to a reflective practitioner". *Multicultural Education* was ranked a close third on (91%). *Teaching of Science* was fourth in this ranking at 81%. According to Peter Piper (FQ, 2003), assignments contributed to development of reflective

practitioners when they “challenge us to think, explore and expand”. Data analysis identified an interesting juxtaposition between assessment as pre-service teachers experienced it, and their ideas of assessment they believed encouraged students’ growth as a reflective practitioner. These are later compared with teacher educators comments related to this issue.

*Assignments which contribute to the development of reflective practitioners*

There is a continuum of perceptions relating to the degree to which assignments encourage reflective thinking. For example, pre-service teacher Rachel did not “believe the majority of assessment tasks involve much reflection” (FQ), and, as previously mentioned Jeremy believed that “[I]t was possible to pass through faking understanding.” On the other hand when it came to identifying the types of assignments which would encourage reflective thinking and the development of a reflective practitioner, pre-service teachers made very clear statements. These included valuing an assignment’s level of thinking related to personal connection and the use of multiple phases. The effective use of reflective journals was linked to quality relationships. Findings from pre-service teachers are followed by those of teacher educators.

*Personal connections*

Assignments most likely to contribute to the development of a reflective practitioner require the pre-service teachers to process information through a personal filter and sense of fit. For example, according to Kava (FQ, 2003), such assessment tasks get “me to dig deep into personal values, looking at character, something I have struggled with”. This same sense of personal connectedness can be illustrated when Lily identified increased self-awareness in assignments which “make you think carefully about how you are forming your ideas and what is informing your attitudes/involvement.” (FQ, 2003). This apparent appreciation for personal connection is a reason why Sue rejected exams as an appropriate assignment.

Exams usually are just what’s in your head (imp. I know) but not much about what’s really “inside”. (FQ, 2003)

When identifying which assessment forms contribute positively toward the development of a reflective practitioner almost one third (10/30) of pre-service

teachers ranked a journal with the “extremely helpful” ranking. However, Jeremy noted that this was the case, “only if you maximised it personally” (FQ, 2003). One valued way in which personal connection is maximised is through writing a rationale, or personal justification for choices or ideas. The writing of the rationale to guide their teaching about science was mentioned by several pre-service teachers:

This activity of writing our own definition helped in creating a personal rationale of why we would teach science. Writing this rationale was a great way to structure our own thoughts to what science includes through our own personal definition and why we would teach this subject. (Cassandra, FQ)

22% of the 27 pre-service teachers who answered the assignment design question nominated the need for a rationale or justification and 26% nominated ‘extended thinking’ as a desirable characteristic. For example, Lynelle (MR) valued seminars or peer presentations for their ability to provide “valuable information that challenged my then, current way of thinking”. Laura claimed that she:

. . . always finds essays helpful and challenging, taking a lot of thought. However, any activity where a rationale or justification needs to be given stimulates this type of thinking. (FQ, 2003)

As well as valuing assignments which encouraged personal connection and involved higher order thinking, the same proportion of pre-service teachers (22%) identified the need for an assignment to be a multiple phased event. This characteristic is the next focus.

#### *Multiple phased assignments*

Another assignment characteristic valued by pre-service teachers (22%) for its contribution to the development of a reflective practitioner is that it be multiple phased. For example, Pippa posited that a good assignment for this purpose would enable you to practice a myriad of skills: “hypothesise on a theory, or write a unit – then actually do it. After this, return to the assignment and critique it. Maybe even try again??” (FQ, 2003). Some students, such as Tania, viewed this ‘follow-up’ or revisiting phase critical to “ensure improvement”. Pre-service teachers such as Daisy suggested that effective assessment required reflective thinking which looked back and drew forward ideas to then be critiqued or justified, resulting in a challenge for future thinking or action. Sometimes, as for 15% of pre-service teachers, effective assignments included input from others –

peers, school or campus-based teacher educators. Illustrative of these is Sharon's suggestion that an effective assignment would involve developing a resource which was "critiqued by lecturer and associate teacher and reflected upon by practitioner" (FQ, 2003). Such assignments involve an interesting mix of external critique and practitioner reflection and have potential for developing collegial, rather than individualistic, learning.

### *Revisiting Assignments*

Another way in which assignments may be multiple phased is related to what happens to them *after* marking. Most often assignments are marked and returned to pre-service teachers to be filed away. Even though the development of unit plans was ranked highly as a valued assignment, Doris noted that developing the plan was of little help, "unless you put it into practice and then reflect on it" (FQ, 2003). Once again we see a belief that without multiple phases and interactions with a task, anything other than completion is unlikely. As indicated in the previous chapter, these are the types of tasks which maintain the old mold of learning.

Some pre-service teachers sought multiple interactions with teacher educators throughout an assignment. For example, Rachel indicated that she valued a teacher educator who "helps and gives advice at various steps as opposed to at the end once finished" as this was "not helpful due to having already finished assignment" (FQ, 2003). Interestingly, this had been the process available for one of the assignments within the *Teaching of Science* course. The assignment, which required pre-service teachers to write an essay in which they identified their rationale for teaching science, was referred to as a 'tool for growth' and the lecturer had different roles before and after assignment submission. Pre-service teachers were able to discuss their assignment freely until submission. After the assessment task was marked and returned, they were provided with a form (Appendix M) which invited processing of the feedback. Overall pre-service teachers' responses to this opportunity were positive as demonstrated by Rose who appreciated "the marking of the essay – especially when you challenged me about something" (AF) and by Sue who commented: "... I think being made to re-read with the various comments opens up my thinking to things not really

perceived – like the underpinning of the principles behind others’ statements” (AF). However, this invitation sometimes revealed important inner concerns. For example, Cassandra commented on her tendency to interpret the feedback in terms of past experiences. She noted the difficulty of getting past “your perceptions and ‘the old tapes you play/watch’ ” (AF). Knowing such concerns assists the teacher educator with targeting support.

#### *Use of reflective journals*

In teacher education, when one thinks of reflective practice, it is often the journal which is associated as the tool to encourage its development. Even though only a third of pre-service teachers valued the use of journals for reflection, their comments are noteworthy and identify characteristics already acknowledged as those most likely to contribute to the development of a reflective practitioner: personal connection, higher order thinking and multiple phases. Where valued, experience with journaling was seen to provide an opportunity to stop and think, to identify beliefs within prior experiences which influenced current learning and to either confront them, or accept them. For example, within the *Teaching Mathematics* course the reflective journal enabled Sue to confront her “ghosts and help get rid of them” (FQ, 2003). Similarly, Hope claimed it was her journal activity which enabled her to understand “who I was as a teacher”, and “why I sometimes struggled to connect with some associates ” (FQ, 2004).

On the other hand when journals are descriptions of events or thoughts alone, their influence is limited. Pre-service teachers who identified the formal process of reflection or journaling as positive tended to attach some form of pre-requisite component or characteristic to the process. For Sue, “Journaling is an appropriate way once a relationship has been built and you feel free to be truly honest” (FQ, 2003). The need for this trusting relationship was evident throughout data as a pre-requisite for the vulnerability reflective journaling tends to require. When you consider your assumptions and the beliefs which shape them, you are putting yourself under the microscope. The need to be self-aware but also to have the security to name and own one’s values and beliefs enables the level of critique which identifies how those beliefs shape teaching and learning. In this sense, teaching and learning are autobiographical events (McDrury & Alterio, 2002;

Manternach, 2002). The journaling process which is valued is not an isolated event or completed task, it is a journey. According to Marika (FQ, 2003) the reflective journaling process combined many of the previously identified desirable characteristics when it: “linked to an authentic learning experience” (school or campus based) (26% identified this characteristic), was “timed to occur close to the event”; “included a variety of possible theories”, and “required you to critique your experience in light of your worldview”. There was no sense of the ‘one right way’ characteristic of the old learning mold as identified in the previous chapter. Rather, an ‘owned’ or justified way is sought.

Pre-service teachers like Gary, Lynelle and others, observed that journals were used in Year One courses and perhaps “these need to be continued/encouraged throughout Year 2 and 3” (Gary, FQ, 2003). There are mixed feelings about the fact that journaling may be required as an assignment. On the other hand, after noting “that the journal process helped me begin the process of reflection enormously” and that “you truly see the benefits of it [reflection] by year three” Jack admitted “if it wasn’t a requirement I probably wouldn’t have done it” (FQ, 2004).

While pre-service teachers identified key assessment characteristics which contribute to their development as reflective practitioners, it is worth noting that from Abdooljaba’s perspective, Clearwater Institute had an assessment driven schedule which was not as much about “self-betterment as it is fulfilling the criteria or achieving the outcome” where “students know what a lecturer prefers and so write to that” (FQ, 2004). The focus now turns to teacher educators’ thinking about assessment where a high level of congruency with characteristics identified from pre-service teachers is found.

#### *Teacher educators’ view of assignments*

When invited to nominate assignment characteristics which contribute to the development of reflective practitioners, the majority of teacher educators (7/9) identified those which included multiple phases. Interestingly they tended to focus on a teaching scenario in which phase one required the design of a learning experience; phase two involved teaching, phase three focused on critique (asking

the why question) and a final phase would include reflection on the entire process including self awareness and forward planning for ‘next time’. Lyn noted that the assignment would require pre-service teachers to “transfer theory to practice” (FQ, TE).

Only one teacher educator (Marie Antoinette) commented about the inclusion of both informal and formal feedback throughout the crafting of an assignment: informal feedback occurring throughout and the formal feedback mid-way through.

Chapter Five indicated the importance of disequilibrium or discomfort, ownership and higher order thinking as factors which contribute to undoing the old mold of learning. One teacher educator’s response appears to have included an assessment with such characteristics. Howard (FQ, TE) suggested that an assessment task which encourages growth as a reflective practitioner would:

- aim at creating a sense of dilemma
- require pre-service teachers to:
- analyse how they dealt with the dilemma,
- evaluate and critique the degree of match between espoused views and actual practice,
- explain why any mis-match may have existed
- identify what they learned about themselves, and, finally,
- present a plan of action to put in place next time a similar situation arose.

In summary, there is a level of agreement between pre-service teachers and teacher educators that assignment characteristics which are effective in developing reflective practitioners include developing personal connection, higher order thinking, multiple phases and feedback throughout the process rather than in summative form where it is not seen to have the same potential for positive influence. The previous chapter identified teacher educators as a significant influence on pre-service teachers within their on campus learning. The next



section focuses on teacher educator characteristics that most influence pre-service teachers.

#### **4. Supportive Characteristics of Teacher Educators**

While Jeremy noted he could “only think of two lecturers who stress the importance of *reflection*” (FQ, 2003), pre-service teachers identified a range of characteristics that they believed teacher educators should have in order to develop reflective practitioners. These characteristics included: being authentic models of reflective professionals, sharing stories of their reflective practice, engaging multiple perspectives with a sense of openness, and, importantly, being relational. Each of these characteristics is linked to particular effects on the pre-service teachers’ development.

##### **4.1 The teacher educator as model**

The most common teacher educator characteristic identified by pre-service teachers (59%) was that of being a model of a reflective practitioner. This characteristic can be seen in Tanya’s belief that “Clearwater Institute lecturers role model and encourage students to be reflective practitioners” (FQ, 2003). However, some pre-service teachers such as Gary named teacher educators who “model active learning in lectures as opposed to others who still model the transmission chalk and talk style” (FQ, 2003). These teacher educators are described as “action learning stylists” in both course work and practicum visits. For Gary, his willingness to “promote innovation and active learning” is influenced by the observation that they “believed in it compared to other tutors who were of a different ilk”.

Teacher educators who model reflective practice also demonstrate a sense of openness and tendency to “challenge us to look outside the norm” (Marika, FQ, 2003). This attribute, commented on by 11 (29%) pre-service teachers, is seen not so much as a strategy, but as a disposition toward inquiry, challenge and investigation. This is illustrated by Lily (FQ, 2003) who observed “the questioning nature of some lecturers about what we thought and how we came to our conclusions” was a key contributor to the development of reflective

practitioners. Sharon (FQ, 2003) indicated that these teacher educators “always [provide] opportunities to discuss experiences taught and to question the unknown”, and for Tania, “activities in class allow honest reflection on own ideas, feelings, opinions and worldviews” (V, 2003). It is the way they approach the teaching and learning process – both for themselves and the pre-service teachers with whom they work. Just as confidence in the authenticity of some teacher educators as reflective practitioners, empowered and encouraged Gary to take risks, so too does the modelling of openness to multiple perspectives encourage pre-service teachers “*to think outside the box*” (Pippa, V, 2003). It is interesting to note that by the end of their initial teacher education, pre-service teachers appreciated teacher educators who resisted giving ‘one best way’ approaches or answers to questions. For pre-service teachers developing this openness is linked to the existence of working relationships and high expectations for pre-service teachers to “push into further thought” (Lily, V, 2003). According to Phill (V, 2003) the teacher educator’s “open door policy where we can come and discuss, talk and challenge examples and work that is given to us” is linked to the fact that Clearwater Institute’s staff “promote community where we are open to share our opinions and ideas”. Peter Piper made interesting connections when he identified key influences on his development as a reflective practitioner. “Lecturer availability, professionalism and outside guidance to help “mold” us as teachers. The focus on relationship and community” (FQ, 2003). It appears that the sense of relationship which is developed is permission giving for pre-service teachers to work vulnerably with their own ideas without fear of reprisal. Lecturers’ tendency to “stimulate us in their lectures to think outside the box” (Pippa, V, 2003) is linked with the idea of “allow[ing] people to openly communicate thoughts” (Dennise, V, 2003). The teacher educator’s openness (indicated through engaging questions) is interpreted as “a powerful encouragement to do the same” (Gary, V, 2003).

#### *4.1.2 Modelling self-awareness*

To ask pre-service teachers to engage in reflective thinking, is to place them in a vulnerable position, particularly in relationship to one who hold the power associated with assessment. However, when teacher educators make their own reflective thinking available to students, and invite them to participate in it

through giving feedback, it seems much appreciated. Pre-service teachers note that “we can see” the passion which teacher educators have for their subjects, and note that “This passion reminds us that we need to be like that too” (Louisa, FQ, 2003). Pre-service teachers such as Louisa, Daisy, and Mary draw attention to the fact that these teacher educators “get us to think about who we are as people because we teach out of what we believe” (Louisa, V, 2003).

Previously in this chapter, findings indicated that pre-service teachers perceived a particular approach to learning and development. What is helpful for pre-service teachers is when the teacher educator ‘unpacks’ their particular approach to teaching and reflection. Demonstration of this self-awareness appeared to make the learning more available to the pre-service teacher. Pre-service teachers such as Cristal, Felicity, and Ali noted that this. “I thoroughly enjoyed your teaching technique as I came to understand it” (Cristal, MR). Where this doesn’t happen, as illustrated by Raniera, it leads to frustration:

Looking at the title of the course the Teaching of Science, I was expecting to be taught how to teach but I think what actually really happened was we got a whole lot of intellectual blurbal. The whole course wasn’t bad though. I enjoyed some of the practical activities. I also felt that the course was taught with great passion but was presented in a way that was hard to pick up on. Science is a subject which I have always struggled with. I still continue to struggle. (MR)

For this pre-service teacher, it appears that neither the teaching approach nor the passion with which the material was taught were sufficient to change pre-existing attitudes and beliefs about science. His “hope is that I have taken on board more than I currently think I have and when I get out into the classroom I hope that these things come to me clearly”(MR). While not effective in this instance, for some pre-service teachers engagement with teacher educator’s personal accounts is helpful.

#### *4.1.3 Teacher educator as story teller*

Of those students who made direct comments about teacher educators’ characteristics, almost half (10/22, 45%) referred to the teacher educator as one who discussed their own “*dreams and ideals*” (Laura, FQ, 2003). By making explicit their own reflective thinking, teacher educators provide pre-service teachers with possible images of reflective practitioners. Teacher educators’

stories are evidence of “their desire to evaluate what they do and to be reflective practitioners” (Pippa, FQ, 2003). According to Jeremy, these “examples that lecturers give from their own teaching experience motivate me to try and think innovatively” (V, 2003). For Susan these stories “kick start your own ideas” (V, 2003).

Teacher educator’s stories invite pre-service teachers into an exploration of how the ‘theory’ looks in practice. For example, several pre-service teachers refer to the way that some teacher educators use course evaluations. Over the three years as students, they have observed changes from year to year in courses as responses to engaging with pre-service teacher feedback and this is seen as “proof of lecturers as reflective practitioners” (Mary, FQ, 2003). This sense of authenticity also receives significant attention in terms of teacher educators as reflective practitioners. The model provided by teacher educators whom pre-service teachers identify as reflective practitioners is seen as “powerful encouragement to do the same” (Gary, V, 2003).

It is interesting to note that the pre-service teachers’ response to the teacher educators’ stories is not that they should copy them, but rather that they might find ways to live out their own “passion for a subject” or their “own personality”. The power of these stories is that they encourage vision of ways life can be lived. An example of what is meant can be seen in the following quote from Greg who moves from a focus on the teacher educators’ ability and commitment to build relationships with their students, to describing his own way of living out this relational connectedness:

Foremost Clearwater Institute puts forward the importance of relationships. Through the building of successful relationships – knowing the students, where they are from, how they think, learn, interact, etc, enables us as teachers to engage and motivate them.

In terms of developing as active, reflective teachers, several pre-service teachers (e.g., Doris, Laura, Gary) believed the teacher educator’s coherent match of voice and model results in learning that is “caught not taught” (Laura, FQ, 2003). According to Marika (FQ, 2003), this lived experience “definitely communicated their belief in reflective practice which probably had a greater impact on me than

any assignment or task they set us”. However, pre-service teachers also identified a characteristic of teacher educators that hindered reflective practice. The following section outlines this.

#### **4.2 Hindering characteristics of teacher educators**

Of the four factors identified as hindrances to the development of pre-service teachers as reflective practitioners, only one related to teacher educator characteristics. Chapter Four reported the most commonly identified hindrance as ‘over use’ of the word reflection (42%). Teacher educators who are viewed as models of a reflective practitioner are seen to be open-minded and to encourage engagement with multiple viewpoints. However, Bob the builder noted “lecturers preconceived worldviews, perceptions etc of individuals is a major hindrance.” (FQ, 2003) This characteristic, identified by almost 20% of pre-service teachers as a hindrance to reflection, is described as ‘lecturer bias’. This bias is evident when teacher educators silenced different viewpoints or chose literature which presented one view of an issue. For example, Tania found that “sometimes my thoughts, values, feelings, worldviews, questions were judged as wrong not wanted/valued because I disagreed with that of the lecturers . . . People should be entitled to their opinion without being attacked or made to feel very uncomfortable.” (FQ). And, Daisy noted “reference to only a selection of literature/research material used that suit the worldview of the lecturer. Lecturers will not often present ideas for us to critique that they do not agree with.” (FQ, 2003)

Not surprisingly, this characteristic identified by pre-service teachers as a hindrance, is the opposite of those which encourage reflection. For example, Phill who noted that “lecturers provide an open door policy where we can come and discuss, talk and challenge examples and work that is given to us” and who “promote community where we are open to share our opinions and ideas” identified lecturers “not letting people think outside the square”(FQ, 2003) as a hindrance.

*4.2.1 Hindrances identified by teacher educators*

Of the hindrances to reflection identified by teaching staff, only two foci were teacher educator specific. These related to a ‘lack of knowledge’ and lead therefore to the need for Professional Development (PD) and ‘lack of commitment’. For example, Marie and Servant both noted a “lack of understanding/knowledge.” And Lyn identified the “need for some PD for staff to engage in the ideas and talk through possible ways of achieving desired outcomes” (FQ, TE). This was seen to be important as she realised that focus on the development of a reflexive disposition was not a matter of adding reflection to “a course which has a reputation for running well (albeit in a very structured form!)” (FQ, TE), but rather what is necessary is “reconceptualising the way of teaching” (FQ, TE) the course. Her suggestion of a way forward included a caution:

We need to be careful that the integration is natural and not pushed so that it becomes an overdose such as has happened to worldview at CI! Modelling is probably the way to go as stated initially, rather than prescription. (FQ, TE)

Data related to the second teacher educator hindrance include descriptions as to how this lack of commitment may be demonstrated. For example, Shannon noted “apathy, lack of interest/commitment to change or be changed” (FQ, TE) and previously in this section Lyn presented the lack of commitment in terms of the “effort required to reconceptualise the way of teaching a course. . .” (FQ, TE). Some hindrances, such as Alene’s “students and staff commitment - actually seeing the value of taking time to reflect in any depth” (FQ, TE) specifically link a lack of commitment to the notion of reflection and an unwillingness to either make it a priority or to make the time for it. Related to this idea, Shannon links a lack of time to “availability of others who will engage with and commit themselves to the growth of another and recognise they in turn stand to learn and grow.” (FQ, TE)

Given the strong focus which the pre-service teachers gave to the need for open-mindedness and engaging other perspectives, it might be seen as surprising that only one staff member identified “being threatened/defensive about opposing views” (Howard, FQ, TE) as a hindrance.

This section of the chapter has identified teacher educator characteristics which both support or hinder the development of reflectivity. Supportive characteristics included teacher educators modelling and envisioning the reflective teacher as one who openly engaged with multiple perspectives. In contrast, hindering characteristics included teacher educators' apparent unwillingness to engage with a variety of perspectives. Specifically identified by the teacher educators was the hindering influence of a lack of understanding and implementing a reflective approach in tertiary teaching. The chapter now turns its focus to aspects of Clearwater Institute's ways of doing things in terms of how its culture supports or hinders the development of reflective teachers.

## **5. Institutional Culture**

When it comes to developing as reflective practitioners, pre-service teachers realise that their growth results from multiple factors. As Leigh noted:

It is a real mixture of community, open door policies, practicums, papers, and assignments that contribute to students becoming teachers and going in to schools and put it all into practice. (FQ, 2003)

However, pre-service teachers reference the existence of a hidden curriculum, an institutional culture or 'way of doing things' which in itself is educative. This idea is captured representatively by Laura:

We're taught to promote discussion, particularly through higher order questions. The way we ask questions and direct discussion will highly influence the way children think. A lot of this is taught through hidden curriculum as lecturers discuss dreams and ideals passing on their passion in a way that is 'caught not taught'. (V, 2003)

Both pre-service teachers and teacher educators indicated aspects of the institute's way of doing things which either support or hinder the development of reflectivity. Initially, attention is given to findings which related to supportive institutional factors.

### **5.1. Supportive institutional factors**

This section of the chapter seeks to identify institutional factors which may support and contribute directly to the development of reflective practitioners. While the factors which are presented in this section can be understood to be

dependent on teacher educators to develop, participants either attribute the factors to the institute or they are identified as a constant, irrespective of specific personal characteristics. For example, Marika identified the assurance that there is no one way of teaching that is best as “the constant theme that emerges in lectures” (V, 2003). On this basis Clearwater Institute is identified as a learning space which:

- encourages risk taking and innovative thinking
- concentrates on the development of relational links and personal connectedness.

#### *5.1.1 Risk taking and innovative thinking*

According to teacher educators and some pre-service teachers, as well as “an atmosphere and a culture here at CI of being a reflective practitioner”, “CI also has a culture of being innovative and teachers (trainees) are encouraged to try new things and to be as up-to-date with new initiatives as possible” (Rebecca, V, TE). For Marion (teacher educator) effective development of beginning teachers who are reflective is dependent on ensuring that “the ethos of the institute encourages risk taking and values originality” (V, TE). Previously in this chapter, and from a pre-service teacher’s perspective, this notion of encouraging pre-service teachers to be risk takers, committed to originality and to ‘think outside the box’ was identified by Dennise as a component of CI’s approach to learning, by Mary as an important characteristic of effective assignments and then by Pippa as a tendency of the modelled way of being which teacher educators present. Institutional characteristics which encourage this risk taking are linked to both teacher educator practice as well as an outworking of secure relationships where encouragement focuses on student learning rather than one right way. Another teacher educator, Shannon reported that Clearwater Institute showed its commitment to reflection through its “constant examination of theory”, and “posing of provocative questions, encouragement of professional research and dialogue, debates and discussions within lectures” (V, TE). These are descriptors to which pre-service teachers refer as giving them a sense of security to be risk takers. When they see that their teacher educators are continually examining the ideas and contexts with which they work it appears to provide them with an image of self as risk taker too. This institutional value is closely linked with the establishment of relationships. Rebecca (teacher educator) believed that “pre-



service teachers have important relationships with their lecturers – which inevitably centre on being reflective in nature” (V, TE).

### *5.1.2 Relational links and personal connections*

The importance of relationships and connection to people as individuals as well as members of groups is a key theme throughout the study. Consistently, from teacher educators as well as pre-service teachers, the data resounds with reference to the importance of this connection. It appears to be a critical factor which leads to a permission giving culture in which one can demonstrate the vulnerability characteristic of reflection which is focused on the ‘integrity and identity’ of the one who teaches (Palmer, 1998). For example, Cathryn (teacher educator) pointed out that the institute begins pre-service teachers’ programmes with an orientation camp designed to provide “the time and opportunity to bond with each other and the staff in order for them to better form a learning community in which they actively become involved” (V, TE). According to Howard, a foundational assumption for effective teacher education is that attention is first and foremost on the one who teaches:

We need to first understand *who* is responsible for learning. If learning is something that is a cognitive, emotional and/or spiritual transformation that takes place in the individual, then the individual is at the centre of learning because learning touches the very essence of who we are. Therefore, there needs to be a relational connection with ‘who’ the learner is from the one who is facilitating the learning through teaching. (V, TE, emphasis in original)

It is not just teacher educators who enunciate such a position. Eunice (pre-service teacher) also captures this commitment as she links programme intentions to her own role as teacher:

Foremost CI puts forward the importance of relationships. Through the building of successful relationships - knowing the students, where they come from, how they think, learn, interact etc enables us as teachers to engage and motivate them. Looking in depth at ways of thinking - analysing how we learn, think and interact with each other. Strategies to encourage thinking, creativity and exploration I think we are modelled very good teaching strategies and encouraged to use these in lectures. It's almost [as] if it's drummed into us - (in a good way) it's now part of how we think. How we act. It has become part of my default mechanism slowly bit by bit each cog that has been taught to us/or learnt/has all fallen to place. It's like planting seeds -throughout the three years these have been planted, watered and now the sun is shining brightly and the garden is growing. (V, 2003)

The institute makes provision for this to occur by encouraging one on one “intake interviews” (Marie Antoinette, FQ, TE). This relationship with, and knowledge of, each pre-service teacher as person, is seen to be critical in order to be able to model and engage pre-service teachers in co-constructed or emergent curriculum and the role of reflection. Alene (teacher educator) noted that commitment to students’ learning is the critical foundation for reflection on practice – otherwise “it has no value and just uses up good energy and time” (FQ, TE). For this teacher educator it was critical that pre-service teachers “see emergent curriculum in practice” before they had the opportunity to “do it under supervision in the practicum.” For this to occur, it is pivotal that teacher educators know the pre-service teachers, not as “empty cognitive tanks to be filled with ideas transmitted from a teacher”, but rather as people who “bring along with them rich learning experiences” (Howard, V, TE). Teacher educators at Clearwater Institute appear to be wary of becoming “programme centred rather than person centred” (Cathryn, FQ, TE). While this study identifies several reasons why the establishment of effective relationships is intricately associated with personal connection, “rather than pump our students with knowledge, we want to engage with their heart, mind – who they are” (Howard, V, TE). This is critical for teaching where pre-service teachers’ previous experiences may be negative and involves reflection on those experiences which itself is a vulnerable process. There appears to be clear connections between relationship, reflection, and taking ownership for learning. Reference to the *Teaching of Mathematics* paper illustrates these:

Before we even touch the curriculum we first get the students to unpack and deconstruct their attitudes and beliefs around maths education. Only then do they take ownership in rebuilding their foundations of learning. (Howard, V, TE)

This unpacking and deconstruction of attitudes and beliefs is unlikely to occur where relational connections are absent. However, as the next section demonstrates, while it may be Howard’s belief that “at CI we see people before the content that needs to be covered” (V, TE), there are institutional practices which hinder the development of the valued relationships, personal connection and desired reflectivity integral to transformative initial teacher education.

## **5.2. Hindering institutional factors**

Hindrances are more easily identified in the data. Three interrelated factors were identified as hindrances. These include institutional bureaucracy, institutional priorities and dominant language.

### *5.2.1 Institutional bureaucracy*

Institutional bureaucracy is seen to hinder the development of reflective practitioners through three particular foci: processes around accountability, course outlines, and assessments. The common component for all of these is that fulfilling the bureaucratic requirements takes time which otherwise might be invested elsewhere. For example, several staff name time taken up in bureaucracy as a hindrance because “too many external accountability processes – diminishes trust, time for reflection” (Howard, FQ, TE). Similarly, Rebecca declared that for her, “the main problem . . . is the pressure of time. . . . I am well aware of the need to make sure the trainees learn to be reflective practitioners, but for me this really is the key hindrance” (FQ, TE). Another staff member who worked in the same programme as Rebecca noted as a hindrance “too much assessment in terms of time, so that time for reflection diminishes” (Howard, FQ, TE).

The compliance requirement for an institution to provide course outlines which include learning outcomes, content descriptions, and assessment designs at the time of approval or re-approval each five years can also be viewed as a hindrance. On the one hand, such a requirement makes sense if it is to ascertain the institution’s ability to design effective learning programmes and experiences. At the institutional level, each year updated course outlines are required to be submitted to a course critique committee before pre-service teachers are enrolled in the course and teacher educators have met them and assessed the attitudes, content, knowledge and skill levels which they bring to the courses. Bureaucratic requirements include the outline of a schedule of lecture or session topics and this is seen to severely inhibit the degree to which teacher educators can engage with and be responsive to their students’ assumptions or prior knowledge. This practice does not reflect accepted educational practice to take account of students’ prior knowledge, experience, beliefs and expectations (e.g., Hoban, 1997; Nuthall,

2001; Powell, 1992). As was demonstrated in the previous chapter, the two *Teaching of Science* cohorts demonstrated both common and distinctive characteristics. For a teacher educator new to the institution there appeared no avenue for responding to these differences before finalising course documentation. This requirement also limits the teacher educator's ability to model responsive teaching, emergent and co-constructed curriculum – even though these are presented to pre-service teachers as desirable curriculum approaches.

This study also questions how effective student evaluation forms are in capturing the long term influence of a teacher educator on students. The following from my own journal captures something of the angst experienced in my thinking about whether I would be offered the *Teaching of Science* paper in the following year. This was in response to what happened when, as previously indicated in the chapter, pre-service teachers' feedback and evaluation forms resulted in my conversation with the Associate Dean. I noted that:

... if I were in leadership in this current competitive environment, I would probably take it away and give it to someone else who will give the students what they want – recipes, formula and answers. But that is not what a science teacher needs to *be*. [emphasis in original] If you are going to teach by investigations, you need to *be* an investigator, a seeker, a learner. You need to have the attitude to start with, the skills – especially questioning skills. I really hope they don't take science away from me. I so want to find a way to get a win/win situation. One where I am true to what I believe the course should be about, and one which gives the students the confidence they need. This really bugs me, that the key ideas and benefits don't become apparent til the end of the paper - but the confidence isn't there. It is such a big ask – as the students typically don't come with good experiences or memories or knowledge – so everything feels like it is double work – especially without confidence in your knowledge base. And for me, this makes it all the more important that the students at least want to investigate and learn and know how to go about supporting others in this process. (PSJ, October, 2003)

Several days later, the result of discussions about my following year's teaching allocation reveal something of the struggle between institutional needs and my personal vision. This included reflexive processing of the struggle which led to reframing the situation (as discussed in Chapter Three). As I sought to understand the pre-service teacher, teacher educator and institutional factors at work I recorded the following questions and issues in the margin:

- assessment as completion!
- view of teaching
- even use of word lecturer (one way communication)
- institutional factors – type of feedback sought/ when it is sought/what does this contribute to students’ understanding of what is going on?
- what will be the influence of relationship with class?
- why do some students move on in terms of active learning while others don’t?
- institutional practices re “reflection” = descriptive level – no further – and on ends determined by others.

Some of these thoughts about institutional influences which hinder the development of reflexive neophyte teachers are also present within the data from other teacher educators. The influence of institutional language is the next focus.

### 5.2.2 *Institutional language as hindrance*

In the reframing exercise above, I had noted the irksome reminder of one way communication which was inherent within the use of the word ‘lecturer’. This was also referred to by Servant (FQ, TE) who drew attention to the institutional language as used to describe teacher educators and their practice, indicating:

I feel there are a number of things which perpetuate a transmissive style at CI. One, we still use terms such as lecture, lecturer, lecture room. Our course outlines are dominated by behaviourist learning outcomes rather than focusing on deeper learning.

The etymology of the word *lecture* is from the Greek *legein* "to say, tell, speak, declare," (Online Etymology Dictionary), and is indicative of education which presents the teacher as expert, and “one who tells”. For this teacher educator, the use of “*lecture, lecturer, and lecture room*” is representative of the view of teaching and learning which pre-service teachers bring to their initial teacher education. The fact that it is common parlance in pre-service teachers’ everyday experience at Clearwater Institute may be a hindrance factor to the development of reflective practitioners. However, a lecture need not be totally transmissive nor necessarily anti-reflection in its effect. As indicated by some pre-service teachers (e.g., Daisy (FQ, 2003), Joy (FQ, 2003), Marcel (FQ, 2004), Taryla (FQ, 2004))

and authors such as Palmer (1998), lectures can be places for transformative learning.

Previously in the chapter the link between time constraints and content coverage was identified by both pre-service teachers and teacher educators as a hindrance. However, time constraints were also linked variously to accountability processes (Howard), content coverage, and even a lack of prioritisation for reflection (Lyn). The next section focuses on the match between declared and experienced institutional priorities.

### *5.2.3 Institutional priorities*

While overall, the participants recognised an institutional commitment to the process of reflection, there are those, both teacher educators and pre-service teachers who remained unconvinced that this was so at the institutional level. Jeremy and Rachel were among the pre-service teachers who were not convinced that, as an institute, reflection or reflective thinking was a priority. Teacher educators such as Marie Antoinette, Lyn and Howard presented the degree to which developing reflective practitioners is either understood or prioritised as a hindrance. There is doubt as to whether the institution is actually intentional about its commitment to this identified value. While individual teacher educators may be intentional in its pursuit, Howard suggested “. . . we are all contributing individually to this without seeing the bigger picture too well” (FQ, TE). In this regard, Lynelle noted that:

Intentionality on the part of the institute and programme buy-in would ensure that it moves to a more central position on stage, rather than hiding in the wings (with occasional appearance) as happens currently. (FQ, 2003)

In relationship to the notion of reflective practice, more dialogue and professional development at the institutional level for both teacher educators and pre-service teachers is sought. For example, Lynelle believed that there were “no development skills in reflection” (FQ, 2003). Even where such may exist (i.e., practicum) she noted that “even here, there is no assistance for students to develop necessary skill, just an expectation that such will be done.” Sharon (pre-service teacher) suggested that an introductory course in reflectivity be introduced to Year One students. However, Sharon (teacher educator) registered “a sense of

hopelessness or powerlessness to change existing situations” together with the frustration from a “lack of sense of personally being valued or heard (only certain voices get heard in some places/context)” (FQ, TE).

## **6. Chapter summary and conclusion**

This chapter has indicated both supportive and hindering aspects of the institution as a reflexive learning space. In relationship to assignments which contribute to a reflective practitioner, a high level of congruency is present between teacher educator’ and pre-service teachers’ beliefs. Critical throughout the chapter is a sense of connectedness. Initially, the institute espouses a relational connectedness which strengthens the learning community and a sense of security which supports the vulnerability related to reflection. Very prominent as a desirable institutional fact or the desire for personal connectedness with learning so that ownership of that learning is established and can be justified. This is linked to a third factor involving the role of higher order thinking and the use of challenging questions which help the pre-service teachers connect with a variety of perspectives. There is a consistency in the findings in that where a particular component is seen as supportive; its absence is identified as a hindrance. However, the chapter also indicates some hindrances at the institutional level. Questions are asked about the degree to which the institution prioritises its commitment to reflective practice in everyday experiences. The main hindrance in this regard is related to the way in which the use of time is prioritised. Interestingly, teacher educators and pre-service teachers seek professional learning relating to developing as reflective professionals. The use of transmissive language and behaviorist learning outcomes further affirm the old learning mold rather than contributing to transformative and responsive learning. These insights about the influence of the institution as a reflexive learning space contribute to the key themes as discussed in Chapter Seven.

## Chapter Seven

### Disconnected No More: Becoming Reflexive Professionals

#### 1. Introduction

This chapter brings together key findings in relation to the research question: *How does pre-service teacher course work contribute to the development of the reflective professional?*

Table 7 on the following page provides the overall structure for the discussion in this chapter. The first question focused on the hindrances to the development of reflective professionals. Discussion of this question is made in relationship to the influence of a technocratic perception of, and approach to, teaching and therefore to learning. Such an approach maintains the theory/practice binary and teacher education course work is perceived as expert knowledge to be directly applied in school experiences and settings. With such a learning lens in place, pre-service teachers seek techniques, tools, and certainty. The second question focused on factors which enable the development of reflective professionals. Such enabling necessitates a different *perception and consideration* lens. The analysis process identified relational and conceptual connectedness as critical to participants' approach to learning, teaching, and reflection. Pre-service teachers describe this alternative perception and consideration lens as 'professional'. Engagement with both questions is in terms of the pre-service teacher, the teacher educator, and aspects of the institution as a reflective learning space. Following this description, the chapter concludes with theorising related to the influence of one's lens in terms of accessing the learning within course work. Chapter Eight addresses the third research question which seeks to identify changes to pre-service teacher education to more intentionally and effectively develop reflective professionals, presenting conclusions and implications of this study.



	<b>Pre-service teacher</b>	<b>Teacher educator</b>	<b>Institution</b>
Hindrances	<b>Being an Educational Consumer</b>  Focus on a technocratic view of teaching, learning and reflection results in initial learning mold remaining unchallenged  Dominant questions: What, Where and How do I teach?		
Q1: What factors are perceived to inhibit pre-service teachers being reflective?	<b>2.1</b> The pre-service teachers' technocratic perception and consideration lens hinder their ability to access development as reflective professionals	<b>2.2</b> Teacher educators who focus on too much content are unlikely to challenge or facilitate change of the technocratic perception and consideration lens or provide adequate time for being reflective	<b>2.3</b> Institutional programme organisation, policy and practices confirm theory/practice divide and too much assessment and bureaucracy takes time from being reflective
Enabling Nurturing	<b>Being and Becoming Professional</b>  Focus on development of an alternative perception and consideration lens challenges initial learning mold and contributes to the development of a reflective professional  Dominant questions: Who am I? Why teach this in this way? How does what I believe influence my learning and teaching?		
Q2: What factors are perceived to nurture pre-service teachers being reflective?	<b>3.1</b> Pre-service teachers' 'way of being' professional involves a changed perception and consideration lens; involving relational and pedagogical connectedness	<b>3.2</b> Teacher educator's 'way of being' reflexive is influential pedagogy and values relational and pedagogical connectedness	<b>3.3</b> Institutional 'way of being' values relationship, risk-taking and innovation

Table 7: Organisation of Chapter

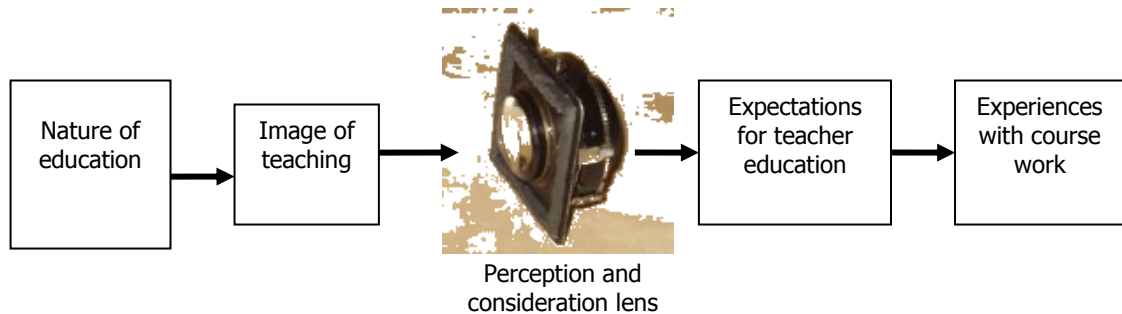
## **2 Being an Educational Consumer**

Throughout this study, over half the pre-service teachers identified an old way of learning which acts as a barrier to being reflective. The old way of learning, from which it is so difficult to escape, prohibits the pre-service teacher from accessing the learning inherent within course work designed to develop neophyte teachers who are reflective professionals. The findings suggest that the critical controlling factor in this old way of learning is the perception and consideration lens through which pre-service teachers perceive, experience and consider their teacher education. On entrance to their initial teacher education programme at Clearwater Institute, pre-service teachers tended to process their course work through a technocratic lens. Such a lens hinders learning.

### **2.1 An inhibiting perception and consideration lens**

On entrance to their initial teacher education at Clearwater Institute, over half of pre-service teachers demonstrated a perception and consideration lens that inhibited development as a reflective practitioner. Their focus, based on apprenticeships of observation and participation, was on what a teacher does. Therefore, pre-service teachers sought techniques, tools, recipes, and certainty. However, what shapes such a lens? Pre-service teachers within this study indicate that the technocratic lens is a result of a consumer mentality of education. Education is perceived as something one acquires. Such an attitude is “understandable given the technocratic view of education and schooling that is predominant in our society” (Gordon, 2007, p. 37). This understanding of education then shapes the pre-service teachers’ image of teaching which in turn molds the perception and consideration lens which then shapes their expectations of initial teacher education. These expectations are expressions of one’s understanding of what it means to learn and be a learner, and, to teach and be a teacher. Consequently, a pre-service teacher’s consumer approach to understanding the nature of education influences their expectations for, and experience of, their initial teacher education.

Figure 9 below captures the generic relationships between the formative influences of one's perception and consideration lens and the influence such has on one's engagement with potential learning within initial teacher education courses.

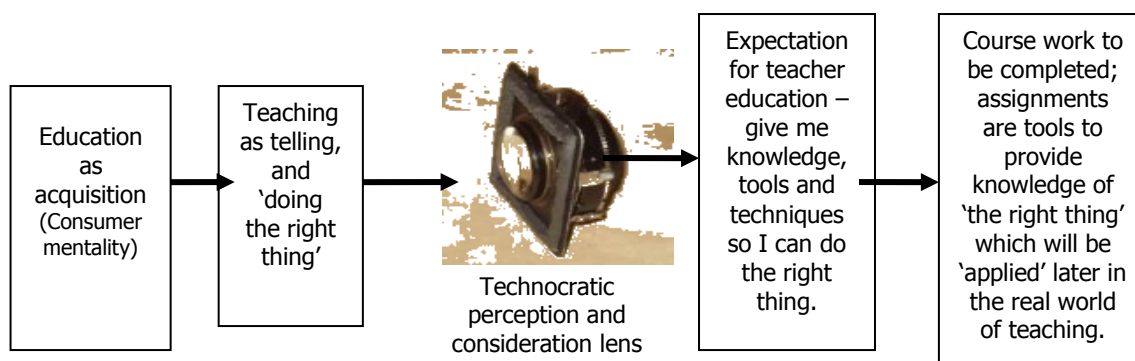


**Figure 9: Perception and consideration lens**

In the light of such an understanding of education, teaching becomes downloading or telling. “. . . many student teachers have an understanding of teaching that suggests the role of the teacher is to place knowledge into the heads of their students” (Richardson, 2003, p. 2). Teaching, in this perspective, becomes ‘doing the right thing’ where the ‘right thing’ emerges from some external source such as research, formal theory or a more experienced other – such as the teacher educator (Appleton, 1996; Claxton, 1990; Gordon, 2007; Nuthall, 2001).

Another consequence of a consumer view of education is the expectation for certainty. If one acquires knowledge as one might acquire a commodity, then the teaching/learning process is external, disconnected from the personal. It tends to privilege the cognitive above affective, spiritual, imaginative encounters (Gordon, 2007). Privileging of learning as cognition alone becomes most problematic for the process of reflection which requires learners to critique deeply held beliefs: beliefs, which in essence are equated with self-efficacy and identity. Such a process is aligned with transformative learning and involves personal connection, courage and energy as indicated by Davies and Osguthorpe’s (2003) conclusion: “that reflection is essential to the formation of learner intent, and that the more honest the reflection is, the more worthy will be the intent” (p. 314). The notion of learner intent is similar to Cochran-Smith’s (2001) ‘inquiry stance’. However,

without such transformative intent, initial teacher education with an unchallenged old learning mold can be understood as captured in figure 10 below.



**Figure 10: Technocratic perception and consideration lens**

## 2.2 Teacher educator practice

It is not just pre-service teachers who may have this technocratic perception and consideration lens. Both those outside the profession and many within educational sectors perceive teacher education “as little more than the transference of pedagogical tips, tricks and techniques” (Berry, 2004, p. 1297) which will be proved irrelevant in the “real world” of classroom teaching. The assumption appears to be that if the teacher is given the research based theory, and a repertoire of teaching skills and strategies together with a model template or approach, that such a teacher will be an effective teacher. And, if the above model template includes the process of reflection then one may claim that such a teacher will be a reflective practitioner. However, we are aware that knowing what to do, and being able to do it, is necessary but not sufficient to ensure that teachers are intentional in their actions (Gibbs, 2003; Haigh, 2000). Such intentionality links to the teacher’s self-efficacy and this, in turn is linked to the personal ownership of the purpose of teaching. It is unlikely that such attributes will develop without engaging prior beliefs, challenging thinking and periods of discomfort or disequilibrium.

When a consumer mentality toward education dominates and the teacher’s role is perceived as downloading important knowledge, an emphasis on content naturally follows. The result of courses which focus on content is passive learners or

“consumers of knowledge” (Bull, 1989, p. 28). Pre-service teachers and teacher educators in this study indicate a relationship between too much content and lack of time, expectation, or opportunity for reflection. In such situations, some teacher educators indicated that the willingness to release time spent on content to inquiry, examination, and learning experiences was difficult, and felt like irresponsibility. Well aware of the importance of developing reflective practitioners, for Rebecca the struggle was evident, given “there is a huge amount of content which we are trying to cover . . .” (FQ, TE). Such a struggle is part of the complexity of teaching – and the final decision as to which aspect of that process is privileged, by either teacher educator or pre-service teacher, may be influenced by the perception and consideration lens in action. For, pre-service teachers such as Gary, who had developed a commitment to reflective thinking: “reflection came down to the individual. I did, many didn't” Gary (FQ, 2003).

As already indicated earlier, well established in the literature is the fact that pre-service teachers’ “apprenticeship of observation” is problematic in shaping beliefs and expectations related to teaching. Some teacher educators such as Hartman (2004) claim: “What also becomes vital then, for the pre-service teacher, is to undo all that they have learned and observed through their apprenticeship of observation.” A view of pre-service teachers as either blank slates on which to write, or those from whom knowledge about teaching needs to be removed and replaced by other knowledge, is best described as a *deficit* approach. Such an approach confirms education as a disconnected accumulation process, which can be reversed without personal complications. However, such assumptions consciously or unconsciously provide meaning to our lives. They are accompanied with feelings which may be the “glue” that hold one’s image of self together (Manternach, 2002, p. 276). Teacher educator’s focus on giving content to the exclusion of engaging with prior beliefs and assumptions is likely to sustain pre-service teachers’ initial technocratic perception and consideration lens. This could well be indicative of a teacher educator working with a similar perception and consideration lens.

Irrespective of the lens through which pre-service teachers perceive, experience, and process their teacher education course work, this study confirms that one

thing is common. The teacher educator is a model. However, differing perception and consideration lenses lead to different expectations of the teacher educator's role. Pre-service teachers who hold on to their technocratic perception and consideration lens see the teacher educator as the one who gives learning, motivation and passion for teaching whereas those with an alternative lens have different expectations. These are discussed later in the chapter. Teacher educators can be likened to mirror images of what teachers do. However, if the people (teacher educators) we use as mirrors share our assumptions – then the result will be affirmation of those same assumptions, prejudices, or stereotypes (Brookfield, 1995a; Greene, 1978). The previous chapter showed that where teacher educators were not open to a range of perspectives, it was unlikely that pre-service teachers would develop a different learning lens to the technocratic one with which they began their initial teacher education. One particular example within this study relates to beliefs about the need for learning to be fun. This study confirms conclusions from Schuck and Segal's (2002) research where teacher educators needed “ . . . to employ multiple strategies in class to challenge the assumption of some of our students that as long as the children are having fun, they are developing conceptual scientific understanding” (p. 95).

Pre-service teachers' initial reaction to reflection as outlined in Chapter Five is not uncommon (Kitchen, 2005; Sumsion, 2000). A technocratic perception and consideration lens tends to confine the role of reflection to the practicum, and as a process to provide evidence that the theory in course work has been applied in practice. However, the contribution of course work to the development of reflective professionals is initially dependent on identifying, engaging, and examining of pre-service teachers' initially technocratic learning lens so that pre-service teachers develop an alternative and more helpful learning lens. As Clarke (1994, p. 506) noted:

Unless we encourage students to [be] reflective about their practice they may be limited to replicating faithfully the practices of other teachers, that is, repetitive practice.

The next chapter section considers institutional practices which may hinder such transformation.

### 2.3 Hindering Institutional practices

Examining institutional influences can be likened to Smyth's (1999) interrogative research where the "contexts and dominant discourses that envelope the everyday lives and experiences of teachers, and that are held in place by hegemonic ideologies, paradigms and worldviews" (p. 76) are examined. Previously, characteristics of a *deficit* approach to initial teacher education were identified as a hindrance to active learning. Findings suggest that a better approach is *developmental*, where the process of 'develop'ing is understood in accordance with its etymology. The verb develop originates from the same root word as envelop. Where envelop means to wrap, develop means to unwrap. Consequently, a developmental approach is one which seeks to 'identify and challenge' or 'unwrap' the thoughts, beliefs, and assumptions which currently 'envelop' one's mind. Smyth's notion of interrogative research may then, be described as liberating everyday lives and experiences from the hegemonic ideologies, paradigms, and worldviews embedded in the contextual discourses. This notion resounded in Alibee's claim (see p. 140) that it was not the new way of learning which was difficult, but rather unlearning the old. Such an interrogative or transformative approach is fraught with challenge at the institutional level – particularly with managing the resultant disequilibrium or vulnerability involved. If the necessary processes and support mechanisms are not in place, it is most likely that the status quo will remain unexamined. If the dominant institutional discourse and practices are expressions of understanding education as accumulation of knowledge, then the liberation to which Smyth refers will not occur.

A teacher education system which "reflects an apprenticeship model to training in which the practices and beliefs of experienced teachers are taken as the ideal to be imitated" (Nuthall, 2001, p, 98) is reminiscent of the technological lens at an institutional level. According to Nuthall, it is the first ritual supporting the myths of current classroom research and teaching, and as such he was latterly most critical. Institutional practices that value the cognitive components of teaching and learning above a holistic understanding of self-connectedness will hinder the development of reflective professionals. This study shows that such components

embed themselves within institutional language, course outline development processes, assessment practices, and programme design.

Pre-service teachers with a technocratic perception and consideration lens hold to a theory/practice binary. These are seen as two separate entities and the one (theory) is needed to apply to the other (practice). The way an institution organises and describes its initial teacher education programme can confirm or confront such a theory/practice binary. Findings indicate that Clearwater Institute's programme organisation provided a powerful confirmation of their theory/practice binary through its two strands (Educational Perspective, Teaching and Curriculum Studies). This binary, though not uncommon, was itself a hindrance to pre-service teachers in the way it set up expectations which confirmed the technocratic lens. While studies such as a qualitative study by Boyer and Miller (1995) note the tendency "that all of the students in this study reflected predominantly on the how of teaching" (p. 104), they do not investigate the influence of the manner in which pre-service teachers view the role of different papers from different disciplines. For pre-service teachers in this study, the strand source of a paper was influential in how they anticipated its influence on their development as a teacher. For those working through a technocratic lens it appears there was little possibility of integration between those papers viewed as philosophical or theoretical with those they believed to be more clearly aligned with practice.

#### **2.4 Consequences of a technocratic lens**

This study has revealed the interdependence of characteristics which sustain the old learning mold. In some instances the lens prevents learning opportunities from being identified, and in other cases they may be identified but rejected. In this instance the lens provides interpretation and meaning making for experiences. At the beginning of the initial teacher education journey, when pre-service teachers' experience initial teacher education via a technocratic lens they report perception of and preference for teachers as tellers, dispensers of knowledge and a motivation focused on completion rather than 'noticing' (Mason, 2002), observing and learning along the way. Such a lens has implications for the way pre-service



teachers interact with course work. Several consequences of the technocratic lens are obvious. In the first instance, pre-service teachers present themselves as dependent on receiving content. They seek techniques, tools and recipes within experiences which are entertaining. In keeping with their view of education as accumulation, they value course work which enables accumulation of content. With this lens, rather than an expression of professional inquiry, research is viewed as something to be consumed, reflection a task to complete, and evidence-based practice a reflective process to find out if you are 'doing the right thing'. The sense of inadequacy and apprehension embedded in their *Teaching of Science* pre-course questionnaires remains. Challenge and disequilibrium are to be avoided. Pre-service teachers with such a lens are likely to see success in terms of presentism and completion, tend to be close-minded, accepting things as they are: apparently simple and straightforward. Importantly, they expect the teacher educator to be one who 'gives' learning and 'induces' motivation and passion. Consequently, with this view of education, the responsibility for learning belongs with the teacher educator – that is, it remains external to self. As described by Craven and Pennick (2001, p. 2):

Students not engaged in the learning process leave with little more than shallow understandings, weak connections between big ideas, trivial knowledge, unchallenged naïve conceptions . . . and an inability to apply knowledge in new settings. As a result, students do not develop the ability or propensity to become self-regulating learners or inquirers.

In other words, even the hoped for knowledge applied in practice does not result. Prior personal experience shapes practice. For the pre-service teacher this means that the image of teacher developed from their own schooling remains powerful. Similarly, teacher educators with this view of education and its consequential perception and consideration lens rely on their own initial teacher education experiences as powerful sources for teaching pre-service teachers in their courses.

Another consequence of the technocratic lens is that students are likely to engage in blame rhetoric. As indicated by Grant (2003, p. 4):

Students who are unable to handle discomfort often will displace or project their discomfort onto instructors (Gabbidon, 2002). These students find it is easier to espouse instructor incompetence rather than accept personal responsibility for their own biases.

While Grant is right in terms of personal responsibility – perhaps the practice is more complex than this. In this study those pre-service teachers who view education as accumulation of knowledge, learning is external to self, the teacher is one who tells and induces motivation, passion, and reasons to teach. The blame rhetoric turns toward the teacher educator. Such a deficit view provides no path forward. The pre-service teacher has limited access to the transformative learning opportunities embedded within the course work.

Metaphorically speaking, it is as if they, like the person in figure 11 are limited to looking through the window at the course, rather than walking through the doorway and experiencing the course.



**Figure 11: Looking through window**



**Figure 12: Doors to safety, tools, and techniques**

However, even within the limitation of a technocratic lens, the February cohort viewed the role of course work to open doors to ways to teach science creatively, effectively and confidently. When viewed through a technocratic lens, this action is reliant on notions of equipping, entertaining, and external enthusing. With this lens, the doors, as in figure 12 open inwards to safety and security to a room full of tools, techniques, and recipes.

This metaphor of opening doors is common in educational literature. For example, Richert (2003) notes that: “teachers are morally obligated to create a



**Figure 13: Doors opening outwards**

classroom and curriculum that will open the doors of learning to their students” (p. 19). To what the door opens, is dependent on the lens shaping expectations. For example, this study identifies that different perception and consideration lenses have very different implications for the role of course work and the development of reflective practitioners. As will be noted in the next section, with a different lens, the metaphoric opening of doors as shown in figure 13 lead outwards, from a bounded and enveloping room to a more

expansive panorama of possibilities, a place of multiple perspectives and opportunities for intentional risk taking.

### **3. Being and Becoming Professional**

While previous studies have identified and described beliefs about teaching which pre-service teachers bring to their initial teacher education as very resistant to change, the participants in this study provide insights into how to influence change. The findings in this section are unique in that they are not descriptions of theory posed by teacher educators. Rather, insights emerge from the voices of those pre-service teachers involved in an authentic initial teacher education context. What emerges from the data is that transformation of one's approach to learning, moving from the old to a new and more helpful way of learning, is indeed possible. Findings indicate that, for those pre-service teachers for whom course work is transformative, the initial technocratic lens is gradually, though not necessarily logically or smoothly, replaced by one which is described as professional.

For a time, the notion of 'professional' privileged the notions of autonomy from outside influences due to the particular knowledge and skill base owned by its members. However, within this study being professional requires a personal commitment to the *telos* or *purpose* of the professional activity (Hall, 2001) and involves intentionality. The professional makes decisions informed by the best research available (Snook, 2000) not because they are prescribed or the current bandwagon idea, but because they fit with the moral and ethical purposes which motivate one's very being and living. LaBoskey (1994, 1997) calls the basis for this intentionality a "Passionate Creed" and claims it to be one of two characteristics of the effective teacher.

#### **3.1 A transformative perception and consideration lens**

Throughout the study, some pre-service teachers refer to a changed way of perceiving learning where course work is discussed in metaphorical terms and 'opens the door' to learning. In other words, the transformational opportunities within course work become accessible to pre-service teachers. Unlike those with

a technocratic lens who can only look through the window of such change, those who write in terms of being professional, take ownership of their learning, and are open-minded in order to be professionally accountable and responsible.

Laura is indicative of such pre-service teachers when she wrote:

If teacher's hearts are truly in their profession and the well-being of the children they will be seeking to learn and grow and be more reflective. (FQ, 2003).

Similarly, Joy (FQ, 2003) noted;

If you have to think about why you do something, then you can change, grow, improve, otherwise you will just keep doing it the same way as you always have (or the same way you have seen it done).

The role of reflexivity, and in particular answering the question “Why?” in this process is linked by Joy to understanding that by drawing attention to our assumptions, we truly provide a freedom to change or not to change, to gain ownership over our practice. As indicated earlier, pre-service teachers bring to their initial teacher education committed beliefs about teaching which are resistant to change (Furlong, 2000; Hattie, 1999; Jessup, West & Throssell, 1996; Mayer, 1999). At the beginning of courses students are keen to learn about how to teach, and too often ignore deep-seated beliefs. These deep-seated beliefs inextricably connect to their identities and “profoundly influence the way they receive knowledge” (Furlong, 2000, p. 26). For example, as already noted, at the beginning of their teacher preparation pre-service teachers appear to view learning as task completion, or the amassing of notes to refer to later. Teaching then becomes the giving of tasks for completion. The problem lies not so much in the situation as this is the result of our current education system, but in the fact that it is unexamined. “It is a matter of being unaware that we have made an assumption and being unaware that that assumption could be questioned that constrains our vision” (Cranton, 1996, p. 103). For example, pre-service teacher, Joy noted the consequences of thinking about previously unquestioned and unexamined beliefs that came because of her reflective experiences with investigations rather than learning about them:

I have learnt a great deal about things that I once saw as being simple and just never thought twice about. For example the importance of investigation and experiments...Previously I would have thought that doing investigations and experiments would be something that just happened without too much fuss. Now I'm a bit wiser and have learnt that carrying out experiments in the class will be time consuming to begin with, when you have to go over

safety measures, workout group dynamics etc. With regard to investigations children need to be taught the skill of focusing, planning, information gathering, processing interpreting and reporting. Another skill which I took for granted was the skill of observation. I never thought you would actually have to teach someone how to observe, yet it was only until this course that I learnt how to observe. (Joy, MR)

Findings indicate that the new way of learning to which pre-service teachers refer, one with a professional perception and consideration lens, is characterised by connectedness across a range of inter-related variables which are discussed under 3.2 to follow.

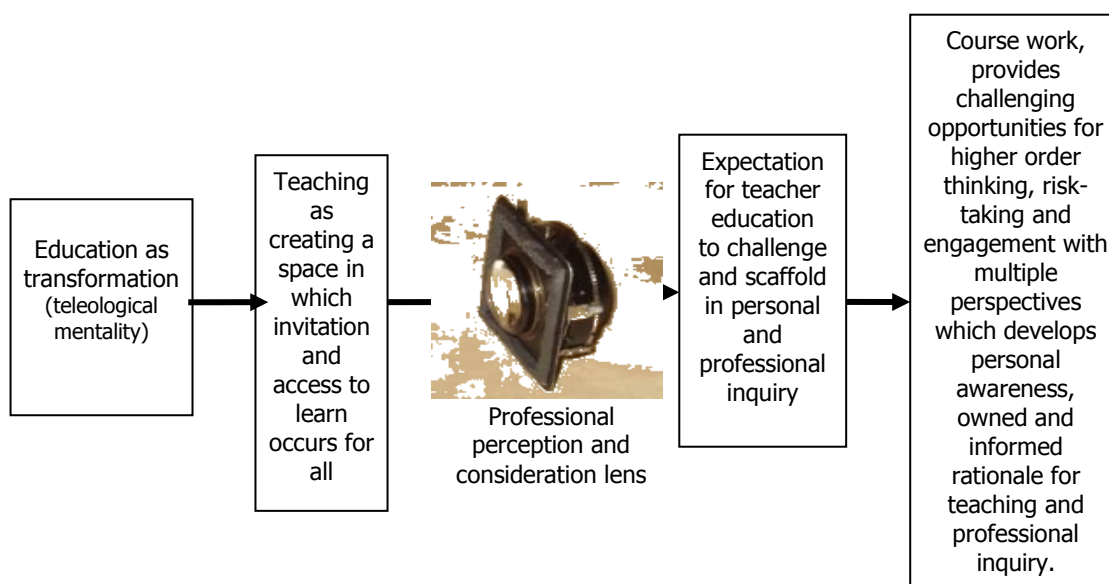
### **3.2 Consequences of a professional lens**

The study clearly indicates that one consequence of a professional lens in operation is that pre-service teachers shift from a dependent attitude toward a personal and unique ownership of learning. Initial attitudes of dependence are reframed in terms of professional responsibility and accountability as internal motivation for learning and engagement with course work. Course work such as that experienced through Educational Perspective Studies as well as Teaching and Curriculum papers are valued for their ability to make “explicit past experience that governed their current perceptions of teaching and learning how to teach” (Clarke, 1994, p. 502).

Another consequence of a professional lens is the predominance of a reflective stance toward course work. What was accepted as simple and uncomplicated is now appreciated for its complexity and multiple perspectives. Through a technocratic lens, such a situation is unsettling and to be avoided; through a professional lens it is part of a learning stance which aims at understanding beyond the surface. The role of course work itself is understood differently. Rather than providing knowledge and skills to accumulate, it is valued for the opportunity to “develop our own thoughts instead of being spoon fed” (Daisy, FQ, 2003), and as a means to “encourage us through assignments to be inquirers” (Doris, FQ, 2003).

#### **4. Shaping the professional lens**

This study confirms that pre-service teachers approach their initial teacher education with established beliefs about teaching. Such a finding is evident in previous studies (e.g., Bryan & Abell, 1999; Pajares, 1992; Zeichner & Liston, 1987). Typically, such studies extrapolate these beliefs about teaching on to learning how to teach. However, this study has identified that pre-service teachers bring equally influential beliefs and practices related to education and particularly the process of *learning*. It is these beliefs and practices which influence the degree to which pre-service teachers access and experience desired learning outcomes within course work. A significant component of their approach to learning relates to characteristics of the perception and consideration lens through which the course work is experienced. For the pre-service teachers, it seems that meaning making (result and process) is determined by this perception and consideration lens. The initial lens, which tends to be utilitarian and technocratic in nature, is shaped by pre-service teachers' 'apprenticeship of observation' and an equally powerful 'apprenticeship of participation'. Participants indicate that the development of reflective professionals necessitates an alternative perception and consideration lens as illustrated figure 14 on the following page. And so, the research question at the heart of this study which focused on the way in which course work contributes to the shaping of a reflective teacher has identified the importance of learning through an alternative perception and consideration lens. While this alternative lens is necessary both to access the learning within the course work and to be reflective professionals, pre-service teachers indicate that simultaneous multifaceted transformation is possible.



**Figure 14: Professional perception and consideration lens**

The next section focuses on what pre-service teachers and teacher educators tell us contributes to such change. Obviously, this has important implications for teacher education which moves beyond reproducing the status quo and which seeks to embody reflexivity. At least three interrelated influential components within the teacher education programme emerge from the data as contributors to the transformation of a technocratic lens to a professional lens. These are relational connectedness, pedagogical connectedness and reflexive connectedness.

#### **4.1 Relational connectedness**

This study very clearly identifies the importance of relational connectedness as a key to the development of reflective practitioners. While this link between reflection and relationship with significant others is not new to the literature, what is new are the insights from pre-service teachers as to why this is so. The relational connectedness is seen to be tri-fold – with those who teach and mentor them, with their peers in the initial teacher education programme and then significantly, with themselves. Shared experiences and dialogue build up a sense of trust that is foundational to reflective activity focused on assumptions or prior beliefs. Importantly, this relational connectedness includes the self. As pre-service teachers become more aware of their own thinking, worldview, and preferences, they are more willing and able to engage with others, and with multiple perspectives. They can be both secure and sensitive. Within this study, there is a very real sense in which the course work contributed intentionally and

actually to developing this increasing self-awareness. These are important traits when engaging in critical, reflective dialogue related to complexities and uncertainties within learning and teaching.

Just as, in terms of teaching and learning, knowing one's self is seen to be critical for teacher educators within the study; similarly, knowing those they teach is central in a process where learning "*touch[es] the very essence of who we are*" (Howard, V, TE). As Cathryn (teacher educator) noted:

Through the building of successful relationships – knowing the students, where they are from, how they think, learn, interact, etc, enables us as teachers to engage and motivate them. (V, TE)

While these ideas are present in the literature (e.g., Beattie, 2001; Bishop, Berryman, Tiakiwai, Richardson, 2002; Bullough & Gitlin, 1995; Campbell et al., 2001; Gallego, Hollingsworth, & Whitenack, 2001; Hoban, 1997; Kitchen, 2005; Monk, 2005), Clearwater Institute does emphasise this in policy and practice. Participants (both teacher educators and pre-service teachers) presented the notion of relationship as a priority and foundation for the development of reflective teachers. The connection is strongly embedded in the data.

Teacher education programmes which seek to develop teachers who position themselves relationally with the children they teach, knowing that tasks of interest work best within "responsive and reciprocal relationships" (Carr, 2001, p. 77) understand that this is not just true for children, but also for adults. As Kitchen (2005, p. 198) wrote:

There is no better way to study curriculum than to study ourselves. When we have a grasp of the difficulties. . . of figuring out something simple such as how we think and feel. . . we will understand the really serious difficulties of trying to figure out how someone else, our students, think and feel. By understanding ourselves, our stories and our relationships, we as teachers can develop relational knowing to become effective curriculum makers (Clandinin & Connelly, 1992) for our students.

Hetzel and Walters's (2007) quantitative study involving 453 undergraduate students also found reciprocal interrelatedness between valuing relationship and teaching approaches. They concluded their quantitative study noting that "Relationships are the central hub of learning" (p. 4). Their study is interesting for the contrast it provides to the findings of this study. The researchers' hypothesis that items related to learning relationships would be the most



predictive factor related to *satisfaction* with teaching practices was shown to be incorrect. In terms of their ideal, students most highly ranked relationship values in what they *sought*. However, in terms of what existed, it was what was termed as ‘the methods factor’ (i.e., what the professor does as he or she teaches in the classroom) and ‘provides interesting lessons’ which most explained student satisfaction with *current* teaching practices. Given the quantitative nature of the study we are not privy to the rationale behind such alignment but what is clear is the fact that for these students: “relationships are the most valued aspect of the learning environment for students” (p. 14). It appears in Hetzel and Walter’s (2007) study that when learners were thinking about the ideal learning environment they identified aspects of relational connectedness, but, for some reason, did not identify these within ‘the methods factor’ used by those who taught them. Relationships in and of themselves do not equal good teaching. They help or hinder learning through the degree to which they contribute to creating a safe (yet challenging) space in which learners can take risks through asking higher order questions, engaging both their own and contextual assumptions and preconceptions. We know that emotional security is critical to brain function (Jensen, 1998). However, as indicated, “safe” does not equate to avoidance of disequilibrium or challenge. Bishop et al., (2002) and Sleeter (2001) both recognise the importance of challenge, and emotional tension in transformative learning. For example, pre-service teachers link valuing teacher educators’ knowing and relating to them with becoming reflective practitioners. The ‘open door’ policy was held in high regard for this purpose and seen as important to developing trust implicit for reflective conversations as part of on-campus coursework. The policy was an ongoing invitation to connect with teacher educators whose examples and encouragement were powerful sources of motivation and support. These interactions, conversations, and sometimes debates occurred spontaneously and deliberately. These interactions do not tend to occur without a safe, trusting, and ongoing relationship; a priority if reflective activity is going to be other than task oriented. Relational connectedness is permission giving and part of an intentional development of a safe risk-taking environment as perceived by pre-service teachers at Clearwater Institute (see Chapter Six).

Confidence plays a part in teacher self-efficacy. One might think that such confidence links to acquisition of strategies and techniques. Initially, pre-service teachers' expectations in the *Teaching of Science* pre-course questionnaire appear to indicate that this could indeed be the case. A technocratic lens would focus confidence on having the 'right' strategies and techniques. However, this study shows links between the development of confidence and key working relationships. It is important, however, to remember that this is not relationship for relationship sake. In this sense, Goldstein and Freedman's comment, "If we lose sight of our relationships with our students, their learning will suffer" (2003, p. 452) is misleading. It is not just any type of relationship which is valued. It is a relationship which provides challenge and scaffolding *as well as* support. One valued component of such relationships is that they are the context for effective communication and challenging presuppositions. A place where "[O]ur thinking is challenged and extended" (Mary, V, 2003) and where teacher educators are "challenging us to look outside the 'norm'" (Marika, V, 2003). To rewrite Palmer, teaching is to create a relational space in which engagement with the paradoxes, complexities and challenges within teaching and learning can occur.

In other words, for both pre-service teachers and teacher educators, the relational connectedness is a component of the programme pedagogy and indicative of beliefs about the nature and role of education as person centred, appreciating that knowledge is embodied rather than banked (Freire, 1985). In fact, Palmer (1993, pp. 29, 30) captures something of this when describing his own approach to teaching:

If you want to understand our controlling conception of knowledge, do not ask for our best epistemological theories. Instead observe the way we teach, and look for the theory of knowledge implicit in those practices... I teach more than a body of knowledge or a set of skills. I teach a mode of relationship between the knower and the known. A WAY OF BEING in the world. (capitals in original)

This embodied view of knowledge both requires and leads to increased sense of personal connectedness.

#### *Personal Connectedness*

Relational connectedness is not always other centred. The continual engagement of pre-service teachers' own learning experiences, values and beliefs for

challenge, examination and, as appropriate, transformation is a critical component of this new way of learning. However, it is not a matter of content alone, but pre-service teachers need to be “*ready, willing and able* to engage profitably with learning” (Claxton & Carr, 2004, p. 87). Skills and knowledge are necessary, but insufficient to ensure that teachers will act congruently with those skills and/or knowledge.

The control of learning is with the pre-service teacher. The teacher educator contributes to this learning by providing shared learning opportunities, lived examples, stories, and experiences which enable pre-service teachers to envisage themselves as authentic reflective professionals. However, it is the pre-service teacher who chooses whether to inhabit that visage, or keeping with the open door metaphor, whether to walk in, or walk out the door. As indicated earlier, Dewey’s use of a commercial transaction as a metaphor for teaching and learning identified that “the initiative lies with the learners even more than in commerce it lies with the buyer” (1910/1997, p. 29).

Findings indicate the importance of valuing the pre-service teachers’ complex experiences as learners in order to develop more “sophisticated and nuanced conceptions of teaching” (Kitchen, 2005, p. 200). This stands in comparison to the deficit model. Rather, initial teacher education as a process seeks to scaffold and support pre-service teachers on a journey of self-awareness toward strong self-efficacy in terms of self as teacher. This resounds with the notion of being professional and with Palmer’s observation that “in every story I have heard, good teachers share one trait: a strong sense of personal identity infuses their work” (1998, p. 10). It appears from the data that pre-service teachers’ personal connection as indicated through ownership of learning and thinking of self as professionals, tend to occur simultaneously. This is not surprising in that the very heart of being professional is the notion of ownership of belief commitments to the point they shape behaviour (Norsworthy, 2003). This connectedness to self and one’s beliefs appears to be critical, if not central to the process of teaching (Dewey, 1938; Hollingsworth, Dybdahl, & Minarik, 1993; Palmer, 1998) and pre-service teachers within this study have identified some of the ways in which this is developed and experienced.

For the pre-service teacher, a way forward needs to honour the theory practice relationship – not as a binary as for the technocratic lens, but by attending to their ‘way of being’ it is possible to draw out of their learning and teaching both ‘espoused theory’, and ‘theory in use’ (Argyris & Schön, 1974). A comprehensive sense of connectedness develops when the self-aware teacher selects specific teaching techniques within a general teaching approach (or way of being) for making their developing educational vision a reality (MacNaughton & Williams, 2004). “A person who really knows and believes something understands it and lives by it. It becomes part of them and the way they view the world” (Hansen, 2001, p. 56). This shifts the focus from a dichotomistic view of theory and practice aligned to the technocratic lens to *who* the teacher is. According to the pre-service teachers in this study this equates to being professional. What is fascinating, and not apparent in the literature, is the link which pre-service teachers such as Tanya made between this becoming professional and being a more mature learner (see Chapter Five).

As indicated in Chapter Two, rather than externalising the teaching/learning process as those who bring the technocratic lens tend to, they inhabit it. These ideas reverberate in Eisner’s 2002 article where he addresses the need to move the initial teacher education focus from *episteme* (formal theory) or *phronesis* (practical knowledge) on into *artistry* because it is within artistry that the notion of knowledge viewed as embedded and resident within self appears to be understood. His reference to a biblical epistemology affirms that theory and practice can never be separated. The known and the knower are inextricably intertwined and related expressions of self (Bullough, Clark & Patterson, 2003).

With a professional lens and the interrelated relational and personal connectedness, pre-service teachers have the opportunity to *live the learning* or experience pedagogical connectedness. The next section of this chapter focuses on the importance of course work which enables pre-service teachers to experience the intended learning.

## 4.2 Pedagogical connectedness

The second category of connectedness which emerges as important in this study has been coined, *pedagogical connectedness*. This term indicates an effective connection between the pedagogy within the initial teacher education programme, and the pre-service teacher and their learning. Connection with three particular components is evident. The first is connection with the teacher educator as an effective model of the reflective professional. The second relates to characteristics of teaching approaches within coursework and the final focus for this pedagogical connectedness presents insights about effective assessments. This chapter section focuses on each of these in turn.

### *Teacher educator as pedagogy where the model is the message*

One identified challenge facing teacher education, as identified in Chapter Two, is the lack of models provided to pre-service teachers. The role and process of reflection is no exception to this challenge. Haigh's (2000) three pre-requisites for effective reflective practice apply equally to a teacher educator's own practice as to pre-service teachers', as "ultimately the growth of students will go no farther than the growth of those who teach them" (Eisner, 2002, p. 384). The findings in this study indicate that one aspect of effective teacher education that seeks to develop neophyte teachers who are reflexive about their work includes intentionally facing this challenge. Pre-service teachers cannot be prepared to be reflective practitioners or to develop the related pre-requisite characteristics "except by teacher educators who possess these qualities" too (Snook, 2000, p. 154). The findings from this study would suggest that this is for two reasons and both relate to the tendency for students to view teachers as models. In the first instance, pre-service teachers in this study are appreciative of teacher educators who model reflexivity. Given their initial technocratic lens, teaching strategies used in teacher education classrooms appear to the pre-service teacher to be straightforward. Teacher educators who *are* reflective about their own practice can share authentic examples and in particular honour the complexities and challenges within the reflective process (e.g., Berry & Loughran, 2002; Mueller & Skamp, 2003; Russell, 1997). Pre-service teachers identify some teacher educators in this study to be committed to unpacking their own teacher education

practice in order that the pre-service teachers have insight into its complexity and the embedded thoughtfulness.

*Authentic teaching approaches*

The second component of pedagogical connectedness relates to the authenticity of the match between the content and approach within teacher educator practice. As is already noted, the notion of personal connectedness weaves throughout this study. In the previous section, the importance of pre-service teachers taking ownership of their learning increases the degree to which personal connections to, and with, the concepts, pedagogies, and processes such as reflection are established. When teacher educators teach through advocated teaching strategies in their own teaching, the likelihood of this connection is increased. Pre-service teachers demonstrate that they are aware of those who ‘walk the talk’ or ‘practice what they preach’ in this regard.

Throughout this study teaching approaches which honour a sense of personal investment, connection and ownership appear to be transformative in nature. Similarly, Schuck and Segal’s (2002) grounded theory research indicated that effort and time invested in the development of deep and thoughtful personal teaching philosophies was helpful for beginning teacher experience. One way which this occurs is through enabling the pre-service teachers to experience the desired learning as students, and then through the process of reflective thinking to draw out personal insight and understanding. Attention was drawn previously to Cassandra’s observation that “[T]o experience this paper on teaching of science from a student’s point of view was very beneficial to me” (MR). On this basis, she was then able to write about “Another thing that I really got an insight into was . . .” (MR). What is important here for pre-service teachers is that the learning is *experienced* rather than *taught*. This is not a matter of semantics. It is a matter of connection. For the pre-service teacher, the experience is inhabited; the teaching appears to remain external and separate. Within this study, pre-service teachers sometimes blurred the boundaries between themselves as learners and teachers. This could be indicative of the fact that what they learn through the experience (and reflection on and in that experience) is what is understood and owned in relationship to themselves as teachers. The following from Peter Piper

is illustrative. Though he is writing about effective assessment strategies for pre-service teachers, what follows could also refer to himself as teacher:

. . . designing a unit that includes evaluation from both students and the teacher, then the teacher examines and critiques student evaluations, to improve/suggest modifications to the unit. (FQ, 2003)

Such an approach is not unproblematic. Experiencing such learning without being thoughtful about the professional decision making within it, does not necessarily lead to the desired transformative insight, ownership, or personal connection. In fact, without a transformed perception and consideration lens pre-service teachers continue to participate in activities but rely on their notes for learning the necessary content information. When pre-service teachers experience the desired teaching approach thoughtfully, they then have a personally owned vision of what that approach looks like. This did not seem to be the case in Olson, Madsen, Bruxvoort and Clough's (2004) mixed method study with 207 pre-service teachers enrolled in a Teaching Science methods course. Olson et al. (2004) concluded, "Teaching continues to be perceived as accomplished primarily through activities. The teacher's role in the classroom is absent or vague at best" (p. 22). They found that while students may use the language of constructivist learning theory from the on-campus course, they do not demonstrate such in practice. When compared with findings from this study, their results may be indicative of the fact that the pre-service teachers have not experienced the 'new' approach themselves and therefore continue to teach as they experienced science at high school. On the other hand, for those who have or who develop a transformative lens, the teacher educator, her practice, and stories of that practice are invitations to make meaning and envisage other ways to dwell in situations.

What is clear within this study is that the experience of new or different approaches is not sufficient to bring change in pre-service teachers' default approach to teaching and learning. Such experience needs to be engaged through critical reflection on and in it. Teacher education experienced as professional learning can include times of uncertainty when students may be confronted with unfamiliar learning and teaching processes or when their confidence in the known and familiar is challenged. "Student teachers teach as they were taught or as they experienced teaching unless this process is interrupted in some major way" (Norsworthy, 2003, p. 62).

*Living the questions*

Previously introduced were the role of the teacher educator as model and some of the challenges and dilemmas associated with such a perspective. A key aspect of reflective thinking which is critical is the way in which teacher educators approach the paradoxes, multiple perspectives, and complexities within the teaching/learning relationship. Brookfield (1995c, p. 46) affirmed this understanding when he wrote:

It is essential that those of us who see ourselves as teacher developers speak publicly about our own struggles and that we model the quest for insight, critical clarity, and openness to alternatives that we seek to encourage in others.

Education deals with ideas and ideologies and these are going to clash. This should not surprise us. It is an issue of engaging not erasing paradoxes which is an integral component of the professional lens. In working with pre-service teachers, Larrivee (2000) identified a series of phases through which one journeys toward transformation. The first includes examination of current ways of doing things, and the second is described as ‘struggle’ before moving on to a perceptual shift. From this study, the way one engages with this struggle, or sense of disequilibrium, appears to link closely to one’s perception and consideration lens. Pre-service teachers with a technocratic lens avoid such struggle. As Larrivee noted the way through such disequilibrium “cannot be pre-planned, but must be lived” (2000, p. 305). Those with a professional or transformative perception and consideration lens see such struggle or disequilibrium as a natural and necessary pre-requisite for growth. Certainly, teacher educators with such a lens tend to participate in similar reflective activities as their students, both as model and in order to understand the challenges and frustrations they face (LaBoskey, 1997, Lowery, 2003; Munby & Russell, 1994). Gordon (2007) suggested that what is required is not that: “teachers develop thick skins, but rather that they ought to learn to live with the uncertainties, complexities, and risks that are inherent in their profession” (p. 50). For the teacher educator, this includes those uncertainties and challenges which come with student evaluations (Gordon, 2007). Pre-service teachers in this study claim that it was the lived experience of teacher educators who modelled this engagement with multiple perspectives, student feedback and day-to-day uncertainties that made possible the conditions which empower them to do the same.



And so, one might say, that with a professional lens teacher educators have the opportunity to *live the questions* and by so doing provide an invitation for their students to do the same. As penned by Rainer Maria Rilke (1903, pp. 33, 34) in *Letters to a Young Poet*:

...I would like to beg you dear Sir, as well as I can, to have patience with everything unresolved in your heart and to try to love the questions themselves as if they were locked rooms or books written in a very foreign language. Don't search for the answers, which could not be given to you now, because you would not be able to live them. And the point is to live everything. Live the questions now. Perhaps then, someday far in the future, you will gradually, without even noticing it, live your way into the answer.

However, such a 'way of being' makes great demands of the institutional learning context that tends to hold to an epistemology "which claims that if you don't disconnect yourself from the object of your study then your knowledge will not be valid" (Palmer, 1999, p. 1). The area of assessment is certainly an area of such contestation.

### *Assessment*

Assessment design is a critical influence on pre-service teachers' approach to the teaching and learning relationship (Scouller, 1996) and acts as a signal to point students to what educators and institutes consider most important to learn (Boud, 1998). Viewed through a technocratic perception and consideration lens, a course is equal to completion of the assessment tasks; viewed and experienced as external to course pedagogy and learning intentions. However, when assessment tasks are an inherent component of the teacher education pedagogy, they have potential to transform and sustain an alternative perception and consideration lens. In this respect, two characteristics of assessment tasks emerge from the data as particularly effective. The first of these positive characteristics is the requirement for pre-service teachers to personally connect with the learning experience in such a way that it leads to ownership and justification of content through higher order thinking such as synthesis and evaluation. Throughout the study, pre-service teachers consistently drew attention to the importance of having their thinking and presuppositions challenged. Typically, this was through being involved in higher order thinking – either in response to questions posed by others or those which they posed themselves. Pre-service teachers indicate assessment tasks require both strong personal connection (such as developing a rationale) and this higher

order thinking process (such as evaluation or justification) to avoid a completion mentality.

As well as valuing assignments that require personal connection as indicated above, pre-service teachers identified the advantages related to assignments that included multiple phases. Such phases may be discrete events and include discussion or submission of drafts for feedback and dialogue or may include the pre-service teachers reflecting back over previous reflections in order to bring forward some understanding. They then review or justify that understanding in the light of related literature and its implication for future practice. A multiple phased assignment may include one component being foundational for another. In this case, the final component may require pre-service teachers to indicate how they have responded to peer or teacher feedback in the foundational component. While time consuming, this process enables relational connection through mentoring and modelling of critical, reflective thinking where the teacher educator scaffolds, in the Vygotskian sense, as a critical friend. Pre-service teachers value it for its contribution to learning. Typically, as identified by pre-service teachers in this study, feedback information they receive on assignments comes after teaching on the topic is completed and when they are least likely to benefit from such. This second characteristic encourages ownership of learning through meta-reflection across those phases. Such an assignment avoids a ‘one right answer’ approach characteristic of those that sustain the technocratic perception and consideration lens. Multiple phases in assessments have the potential to encourage the disposition for, and tendency toward, meta-cognition and the ability to manage a sense of disequilibrium. This process of “questioning one’s own learning, or thinking about one’s own thinking” (Loughran, 2006, p. 93) contributes to an understanding of assessment as part of the transformational learning journey.

This study found that assessment experiences which enable personal connection leading to ownership, self-awareness, and justification and which include multiple phases or facets have significant potential for the development and sustaining of a professional perception and consideration lens.

### **4.3 Reflexive connectedness**

Throughout this study, it is evident that for some pre-service teachers, reflection is an interruption, an unnecessary task to be completed. Some pre-service teachers such as Hope and Jack indicate that it takes time to understand the importance and role of reflection. Sharon (FQ, 2003) indicated that it would be valuable to “have an introductory course at the beginning of Year One” in order to enable such growth to occur more quickly. Pre-service teachers observed differences in both lecturer approach to reflection and its emphasis throughout the programme. For example, Hope made the comment that she had “over the years at CI noticed less reference to reflecting” (FQ, 2004). There appear to be two ways in which connectedness with the process of reflection is important for the development and sustaining of a professional lens. These are the deliberate development of cohorts and dialogical spaces and the experiencing, rather than doing, reflection throughout coursework as well as practicum. The first of these is addressed in the next section about institutional practices.

Consequently, rather than first teaching about reflection or active learning, teacher educators might seek to engage pre-service teachers in reflective thinking before introducing them to any related theory. To be reflexive about their learning and therefore their teaching, pre-service teachers need to similarly experience the power of the reflective process rather than read about it. The assumption thus, is, they would be willing and able to implement similar pedagogical and reflexive processes when teaching (Klein, 2001). In other words, by enabling pre-service teachers to experience the intended benefits, the likelihood of ‘buy in’ in the Deweyian sense may be increased.

With a professional lens, reflection is an iterative/reciprocal process, “an orientation to the activities of life rather than a mental process itself” (Moon, 1999, p. 100). As previously indicated by Marika (see p. 152) and Joy’s example (see pp. 197, 198), it enables pre-service teachers to become aware of unconsciously held knowledge. When it is more visible in this way, it is able to become the field for examination and enquiry.

A key shift between a technocratic and professional lens is being and becoming a learner. Once pre-service teachers see themselves in the place of ‘teacher as learner’, initial teacher education needs to provide opportunities and scaffolding through which they can make sense of those experiences as learner. Typically, this involves realisation that we know in relationship to others (Kitchen, 2005; Polyani, 1958) and consequentially, the development of experiences in which the pre-service teachers “feel safe in sharing and understanding their multiple perspectives” (Kitchen, 2005, p. 200) and in which they may “present one’s authentic self in relationships which are open, non judgmental and trusting” (ibid, p. 195). Walkington’s (2005) qualitative study with 240 pre-service teachers found that “[A]cknowledgement of these beliefs provides a basis for learning. Respect for these beliefs builds trust” (p. 63).

#### *Developing a reflective stance*

Typically, in initial teacher education, emphasis on reflection has been two fold: a) within the context of the practicum and b) as a task. Martinez (1989) is one of a few teacher educators who argue for the integration of reflective thinking into both course work and the practicum. It would appear that it is this focus on reflective thinking, rather than process, which holds potential for the transformative learning critical to the development of reflective practitioners. Rather than seeing reflection as a process, it is a personal stance – with common characteristics of Cochran-Smith’s ‘inquiry stance’, Manternach’s (2002, p. 278) “stance of protracted inquiry and curiosity”, together with a commitment to developing a Passionate Creed and the continual asking of the question ‘Why?’ (LaBoskey, 1994). The power of the development of an overall Passionate Creed, and “critical rationale to guide their practice” (Brookfield, 1990, p. xvii) for different course work components should not be underestimated. Without such, there is no sense of direction and purpose, or “sense of where they are going and why it is important to get there” (ibid). This applies to learning and teaching – not teaching practice alone. Without this interrelated sense of personal, teleological, professional, and pedagogical purpose, reflection remains paralysed by questions such as: What worked well?, and, What can I do better next time? Such questions are actually meaningless without a purpose and reason by which to determine an understanding of ‘better’. To have a teleological mirror as one of those that

generates questions to ask of the pre-service teachers' meaning-making process provides the possibility of the type of connectedness that appears to be critical. As Haigh (2000, p. 88) indicates, reflection is not limited to a focus on practice, but can target any experience, or even expectation of experience:

Reflection is thinking about an experience with the intention of deciding what it means, how it can be explained and what the meaning and explanations might imply for the future. It includes thinking about the character and quality of such thinking and associated thoughts. Mills and Satterthwait (2000) reported the dangers of reflection "when it valorises rationality over emotionality" (p. 31). Such a valorisation inducts students into a techno-rationalist approach to education which serves to undermine an 'ethic of care' which is viewed as central to good teaching practice. This study indicates clear differences between pre-service teachers' approach to reflection dependent on the degree to which personal and conceptual connection are present. While it may appear at first glance to be playing with words, it appears that the key to such difference is that a reflective stance is developed, not by '*doing*' reflection, but by being required to *be* reflective about their thinking – whether that thinking be related to their learning or teaching. Such a change removes the focus from a technocratic, 'What did you do?', to a potentially more transformative, "What are my beliefs and assumptions regarding teaching and learning and how do these beliefs influence my educational activity?"

When a reflective stance involves examining one's autobiography as learner or teacher, then the pre-service teacher or teacher educator can assume the role of Bakhtin's (1986) 'privileged outsider'. Such a role is important to gain the best learning and insight from multiple phases and revisiting pre-service teachers' initial written material. Within this study, the need to commit one's ideas to writing so that they can be examined and revisited, via activity such as a meta-reflection, appears essential.

### **5. Influential Institutional ‘ways of being’**

As for the pre-service teacher and teacher educator, the institution presents itself, develops systems, and operates through a particular perception and consideration lens. Its own view of the nature of education is influential. In the current funding climate where students are positioned as clients and EFTS<sup>12</sup> attracting funds it is easy for a technocratic lens to dominate its culture. Clearwater Institute had a declared commitment to teaching as relationship and reflection as an important educational process. The study indicates that some of the practices are supportive of reflective development. One example of this was its commitment to pastoral care through the provision of intake co-ordinators and the open-door policy.

This study identified the importance of relational connectedness, a risk taking culture and a ‘good fit’ between intentions and institutional language and culture. It shows alignment with Loughran and Northfield (1996) who found that change occurs when learning is not done *to* the student but rather *by* the student (p. 123). Of particular importance within this study is that learning be owned by the pre-service teacher, rather than owned by the teacher, or teacher educator. However, there are institutional practices that make this difficult. This includes the way course outlines are constructed rather than co-constructed in order to strengthen pre-service teachers’ ownership and engagement. Another hindrance related to time and compliance issues.

#### *Time and compliance issues*

A key influential component identified in the study relates to time. Pre-service teachers, teacher educators and the literature identify the importance of how time is invested – and this typically is dependent on institutional values and priorities. On the one hand, the study concurs with the fact that lack of time available for reflective thinking is a hindrance to active learning (Lowery, 2003; Munby & Russell, 1996). Previously indicated in this chapter is the importance of relationship to the development of reflective teachers. Also clearly identified by both teacher educators and pre-service teachers is Clearwater Institute’s commitment to such through small classes and open door policies. In this sense,

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<sup>12</sup> EFTS (Equivalent Full-Time Student) is the common value system used by the Tertiary Education Commission to fund higher education in New Zealand

time invested in developing relational and dialogical learning spaces is time well-spent (Lowery, 2003, p. 30). This is not unproblematic for the Clearwater Institute. On the one hand, it declares a commitment to relationship and reflection, but on the other hand, it inhabits a complex political, social and historical context that is driven by compliance issues necessary for survival in the current tertiary field (TEC, NZQA, NZTC)<sup>13</sup>. In addition, the institution must balance external functions (employment regulations) and interests of leaders and staff (trust, harmony, job satisfaction), and living up to norms of what it (tertiary teacher education) ought to look like. Typically, there are ratios to meet in terms of staff to student enrolments, but also in terms of face-to-face versus independent study time. Such management issues reflect an emphasis on a notion such as ‘productivity’ rather than transformation. Clearwater Institute will be challenged to make such decisions guided by its beliefs that sit in opposition to those reflected by the funding institutions. In the light of the fact that the process of challenging deeply held, personal assumptions and beliefs is extremely difficult, then, the institution that is serious about developing neophyte teachers who are reflexive must be prepared to invest in pedagogy and organisational structure which develop relational and dialogically safe communities of learning (Craven & Pennick, 2001).

*Teacher education: Guided by a shared and owned conceptual framework*

Pre-service teachers identify the different approaches to and levels of engagement with reflection which teacher educators display within course work. The need for a shared vision and understanding relating to reflection and professional learning is one component which teacher educators believe would make the institution a more effective, reflective learning community. (This has occurred subsequent to this study as part of developing a conceptual framework.)

Findings support recent attention to the advantage for institutions offering initial teacher education to capture their interpretive framework within a Conceptual Framework statement. Such a statement is public and active in directing design and implementation of teacher education programmes. Some teacher educators

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<sup>13</sup> Tertiary Education Commission (TEC); New Zealand Qualifications Authority (NZQA), New Zealand Teachers Council (NZTC)

are heralding the move as helpful and even necessary for effective teacher education (Eisner, 2002; Hoban, 2004; Howey, 1996; Kennedy, 1991; Le Cornu, Mayer & White, 2001; Sankey, 2001). At the time of conducting this research, Clearwater Institute's documentation identified intentions and values; but there was no clear aspirational conceptual statement to provide either forward-looking direction or accountability. Consequently, the requirements of accrediting bodies together with individual teacher educator beliefs were the most influential. A review of 93 teacher education institutions and programmes conducted by Wideen, Mayer-Smith and Moon (1998) indicated that one key to influential teacher education is the establishment, articulation and communication of a cohesive programmatic focus that is conveyed explicitly to students. Similarly, Ingersoll and Scannell's (2002) review of six 'effective' teacher education programmes in the United States identified that an institutionally shared concept of good teaching that was consistent across courses and student experiences, was common. According to Kane (2005, p. 220) "Coherent programmes of ITE are grounded in a set of big ideas that are continually revised as both faculty and school-based teacher educators work towards a shared vision of good teaching practice." Teacher educators within the study identified the need for clarification of what is meant by reflection, together with a shared vision of what contributes as quality teacher education.

## **6. The power of the lens**

The findings from this study indicate that the educational lens through which the pre-service teachers approaches and experiences initial teacher education course work has major consequences for the degree to which that course work can develop reflective practitioners. However, it appears that the same influence of the lens for pre-service teachers also applies to teacher educators and the institution. The table which follows identifies characteristics of the 'perception and consideration lenses followed by the consequences of those lenses for initial teacher education. While Table 8 presents characteristics of the two lenses as extreme binaries, findings suggest that pre-service teachers (and teacher educators) hold a mixture of the components throughout their development phase.



<b>Learning Lens</b>	<b>Technocratic</b>	<b>Professional</b>
Key question relates to	What a teacher does	Who a teacher is and how assumptions influence educational practice
Who is the teacher?	You are what you teach	You teach who you are
Growth equals	Behaving	Being and becoming
Process of Teaching	External, disconnected to self Downloading, telling, doing the right thing	Internal, connected to self Decision making shaped by educational purpose
Relationship to research	Determined by others	Informed by others
Education is . . .	Something to acquire (consumer mentality)	Personal growth toward a 'vision of living' (teleological mentality)
Who is the learner?	Passive consumer of knowledge	Discerning, active learner who owns learning
Thinking	Routine thinking	Reflective thinking (higher order)
<b>Ramifications for initial teacher education</b>		
Pre-service teachers are . . .	Dependent on receiving content	Seek ownership and connectedness in learning that is inhabited and lived
Initial teacher education . . .	Provides techniques, tools, and recipes	Prods and guides us to see potential for ourselves.
Key questions	Committed to asking "How?" and "What?"	Committed to asking "Why?" and "Who?" as well as How?, What?, When?
Initial teacher education course work	Accumulation of content, "being told what we need to know"	Enquiry, engagement with expectations and prior experience which develop lens and reflective stance through which pre-service teachers may enquire into own learning (and teaching)
Teacher educator	"Gives" learning, motivation, passion (responsibility for learning belongs here, i.e., external)	Model who scaffolds/mentors (discerning, vulnerable, reflective, risk taker)
Learning stance	Closed-minded Acceptance of things as they are, simple, and uncomplicated	Open-minded An inquirer's stance, involving complex and multiple perspectives
Challenge, disequilibrium	To be avoided, sense of inadequacy, apprehension embedded in learning lens is sustained	Seen as purposeful and even necessary to initiate critical thinking
Goal of/for learning	Presentism	Personal integration and professional inquiry
Driver of/for learning	Completion	Professional responsibility and accountability
Assessment	Completion of tasks	Opportunities for developing self awareness and growth
Reflection is . . . Focused on . . .	A task to complete Something provided by other/expert	An iterative/reciprocal process Personal, professional responsibility and accountability
Purpose	To check you are doing what is right	Moves knowledge from unconsciously to consciously held to improve intentionality of educational action
Result	Limited access to learning inherent within initial teacher education course work.	Learning within initial teacher education course work is available.

**Table 8: Technocratic and Professional Lenses as Binaries**

The next chapter section asks the question, “What components of course work can be influential in changing the initial learning lens to that which is more conducive, even necessary for the development of reflective practitioners?”

## **7. Hope for Teacher Education**

This study sought to identify and understand initial teacher education at Clearwater Institute as experienced by the participants with the hope that examination of findings might enable moving what is closer to what might be. As Carr and Kemmis observe, “. . . practices are changed by changing the ways in which they are understood” (1986, p. 91). This study indicates that the ways in which participants understand the nature and role of education, teaching, the teacher and the learner is critical to transformative teacher education. Such understanding is not limited to pre-service teachers’ experience of their course work, but includes the perception and consideration lens for teacher educators and institutional culture. Where this understanding as captured within one’s perception and consideration lens is technocratic with its focus on technical aspects of teaching, the pre-service teacher is unlikely to access the learning within course work which is aimed at developing reflective professionals. However, if the perception and consideration lens is professional, with its focus on develop self-awareness, ownership and transformative development, the pre-service teacher is more likely to access and own the available learning. What is not being proposed is an either or scenario related to the importance of the technical components of teaching – these are obviously essential. However, what is more critical is the perception and consideration lens through which the pre-service teachers experience their course work. This study provides hope for teacher education as it has identified some characteristics of initial teacher education which can contribute to the transformation from a technocratic to a professional lens. Such characteristics include cogency across institutional and teacher educator understandings of education, teaching and the role of the teacher in order to determine commitment to institutional, pedagogical and philosophical priorities. Such priorities shape programme strands, timetables, assessment practices and institutional processes related to course outlines. This study indicates that critical to transformative initial teacher education is commitment toward *relational connectedness*, targeted

*ownership of learning*, and a willingness to ‘*live the questions*’ rather than seek certainty and simplicity. These flow from an understanding of education as a teleological endeavour and a view of teacher as professional. Initial teacher education which makes the difference is developmental, focused on “the actuality of being, on engendering particular dispositions or ways of being” (Bentley-Williams, 2000, p. 2). Such an intention can be described as ‘being and becoming’ – first a learner and then a professional and includes opportunities for personal integration and professional inquiry in structure, pedagogy and assessments.

Previous studies have tended to link reflection to practicum experiences. This study has sought to understand the way pre-service teachers perceive that course work contributes to the development of a reflective professional. An important finding from this study is that the need for change is beyond the ‘act of teaching’ to the broader notion of education. Perhaps this is the reason why courses within the Educational Perspectives strand are so powerful. Ideas have consequences (Sproul, 2000), or as Dewey (1910/1997, p. 19) claimed, “ideas are our rulers – for better or worse.” Ideas and ideologies do not sit in a philosophical, historical, or socio-cultural vacuum. Groundwater-Smith, Ewing and Le Cornu (2003) refer to the disciplines such as philosophy, sociology, history of education and educational psychology, not as foundations, but rather as “powerful intellectual tools” (p. 17). It is important to contextualise the thinking, readings, discussions of teaching, and practice within a broad social, political, cultural, historical and theoretical context (Kuzmic, 2002). MacNaughton’s (2000) “pedagogical gaze” with its “wearing of multiple lenses” (p. 236) is a helpful metaphor which requires such awareness and consideration. This focus on self-awareness forces pre-service teachers (and teacher educators) to face their fears (Brookfield, 1995b; Henderson, 2001; Palmer, 1998). Investigating a wide range of perspectives is initially threatening to the values, beliefs, assumptions and practices held by pre-service teachers, it will in the long run enable them to:

- better understand their own values, beliefs, assumptions and practices
- understand the values, beliefs, assumptions and practices of others
- understand how these values, beliefs, assumptions and practices influence the teaching/learning relationship, and

- effectively teach their own students by engaging their perceived values, beliefs, assumptions and practices albeit that they may differ from their own.

The study demonstrates that Educational Perspectives strand course work has the potential to change a view of education as simple and straightforward, to contested, complicated and multi-faceted. It appears that this change is one of the positive results of, while at the same time being necessary for, ongoing transformation. Interacting with literature from a range of perspectives is critical in this process.

The study has shown that aspects of the course work either sustain the original, technocratic lens, or contribute to its transformation. Important to the transformation from technocratic to professional lens is the development of safe dialogical spaces and community which support pre-service teachers in the process of coming to understand themselves, their beliefs about education, teaching and learning and consequentially how these beliefs affected the way they then teach. Rather than focusing on teachers' functional roles there are advantages to developing a reflective stance which does not accept stability as the status quo but rather continually asks of both teaching and learning questions such as: "What are the beliefs and assumptions which are sustaining this endeavour?"

It makes sense that initial teacher education course work will focus on connecting pre-service teachers' passion with self-discovery and continuous growth, diverse thinking and creative engagement with diverse thinking. Similarly, if initial teacher education is viewed not from a deficit viewpoint but rather as a developing, a journey of being and becoming, initial teacher education sets in place foundations for the 'becoming' journey. Therefore the importance of the step identified by the students, as initial; that is, the step of becoming a learner, changing the technocratic lens for a transformative lens – is key for future professional learning.

This study indicates that the teacher educators' theories-in-action are as important as those of their students and the interaction between them and pre-service teachers are embedded within an institutional framework which itself generates factors which sustain the unhelpful theories and the nature and role of education, teaching and learning. The more coherence that exists between institutional 'ways of doing

things' and priorities of course work; the more transformative will be the learning experienced by all. It is clear however, that such coherence is not easily attained

## Chapter Eight

### Conclusions and Implications

#### 1. Introduction

The nature of this study on reflection has a number of implications. Some of these implications are theoretical and add knowledge to the literature related to the impact of pre-service teachers' initial beliefs and how these may in fact be engaged so that they contribute to, rather than hinder, transformative learning. Some of the implications are more practical in that they relate to teacher educator practices which enhance pre-service teacher engagement with course work. Also, some implications contribute to understanding the influence of institutional practices on student learning.

The study focused on the research question, "What does pre-service course work within an initial teacher education programme contribute to the development of the reflective professional?" Sub-questions focused on inhibiting and nurturing factors within this process. A critical reflexive interpretive methodology which sought authenticity within its meaning-making process developed from an initial consideration of self-study research methodology. Characteristics of critical reflexive interpretive methodology include an adaption of Wolcott's (1992) data gathering techniques. While experience was the starting point for research, it was not taken-for-granted. Enquiry became the data analysis process. And, examination became an iterative process which sought satisfaction that the enquiry was authentic, valued participants' voices and recognised the implications embedded within the context within which the study occurred.

Data collection within the main study occurred in two phases. Data collection within the first phase came from both my and the pre-service teachers' reflective experiences, within a *Teaching of Science* paper I taught (n=39, 19 in Feb cohort, 20 in July cohort). This included a pre-course questionnaire, gestalt activity, meta-

reflections, and other communications such as interviews, personal journal entries, conversations, and emails. Phase two data collection focused on the broader initial teacher education experience and context within which their development as a reflective practitioner occurred. Data collection in this phase included responses from pre-service teachers (n=50, 39 in 2003, 11 in 2004) and teacher educators (n=9) to an authentic vignette, a sectioned questionnaire, institutional documents and semi-formal conversations to test initial findings. Data from the anonymous sectioned questionnaire was procured from pre-service teachers at the very end of their three year teacher education course.

First, the study shows that the majority of pre-service teachers commence initial teacher education constrained by a learning mold which hinders reflective learning. The key characteristic of this mold is its *technocratic perception and consideration lens* through which initial teacher education is perceived, interpreted and experienced. This technocratic lens results from, and continues to confirm, a view of education as accumulation, teaching as telling and learning as presenting such knowledge or evidence of skill back in the ‘right’ way. Consequentially, pre-service teachers seek tools and techniques which they can apply in the ‘real world’ of teaching which remains a straight forward activity and assessments, including reflective activity, are tasks to be ‘completed’.

Second, and significantly, pre-service teachers and teacher educators indicate characteristics which contribute to breaking such a mold. Key characteristics of this process are its *professional perception and consideration lens*, relational and pedagogical connectedness and teacher educators who model the desired dispositions. Viewed through a professional lens education is a transformative process toward a desired ‘way of being’. An important notion of connectedness (relational and pedagogical), leads to valuing ownership and justification of learning where assessment tasks are tools for growth and where critical consideration of multiple perspectives has an important role within that growth.

Third, the study indicates the importance of institutional congruency so that what is espoused is experienced through language, assessment, teaching approaches and contextual culture.

The findings and related recommendations identify hope for an endeavour which has been beleaguered by doubt, reviews, lack of evidence of influence and general enslavement to a technocratic paradigm. The specific contributions from the study follow.

## **2 Contribution to Knowledge**

This study builds on previous work in teacher education but makes its own unique contribution in the field of teacher education and more broadly, the role of reflection for professional learning. The findings emerge from both teacher educator and pre-service teachers' voices and perceptions within an authentic context.

In terms of its contribution to the field of teacher education, this thesis identifies characteristics of initial teacher education programmes which contribute to either sustaining or breaking the mold of learning which pre-service teachers tend to bring with them. Consistent with a large body of literature, this study confirms that pre-service teachers bring to their initial teacher education course work well established attitudes and beliefs about teaching and learning. Evidence of Lortie's (1975) 'apprenticeship of observation' is present. Many authors (e.g., Bean & Stevens, 2002; Brookfield, 1995c; Cornford, 2002; Fendler, 2003) believe that "the story beliefs that teacher education candidates bring with them to the teacher education classroom are thought to be stumbling blocks in the reform of K-12 classroom instructions" (Richardson, 2003, p. 2).

However, what is clear in this study, and part of its contribution to the field is that such beliefs are also problematic for pre-service teachers' view of *learning*, and, consequently, have far reaching implications for their engagement with teacher education course work. In addition to the 'apprenticeship of observation', this study indicates that pre-service teachers bring to their initial teacher education courses the consequences of an 'apprenticeship of participation' (Norsworthy, 2005a). Through many years of participation in the educational system students have developed a plethora of ways to be successful in that system. Often, an expectation to complete and gain credit surpasses the desire to learn. It appears



many learners have developed alternative strategies to those of information seeking and cognitive restructuring – rather they wait for the teacher to provide the ‘right’ answer and then rote learn and creatively regurgitate the same. This study suggests that such a stance toward educational experiences is a hindrance mechanism when teacher educators seek transformative teaching, learning, and reflexivity.

Grootenboer (2003, p. 30) argued that:

Teacher education courses are uniquely positioned to provide such interventions between school experience and future teaching experience. The need to make maximum use of this opportunity is obvious and compelling. However currently there remains little evidence as to how this might be achieved.

This study does contribute to such evidence.

## **2.1 The influential perception and consideration lens**

While pre-service teachers do indeed bring firmly established beliefs about the processes of teaching and learning, there is also a reciprocal and iterative relationship between these views and their understanding of the nature of education. This understanding controls the pre-service teacher’s image of teaching which then determines characteristics of their personal lens through which initial teacher education is perceived, interpreted and experienced. For this reason, the use of the descriptor *perception and consideration lens* encapsulates both the initial process of perception – interpretation of phenomena, and then the thought processes (initial or subsequent) related to that meaning making – that is, interpreting the interpretations. This *perception and consideration lens* appears responsible for shaping pre-service teachers’ expectations for their initial teacher education. In particular, the lens regulates expectations they have of and for course work, their stance toward learning, and consequentially, the degree to which course work may contribute to the development of a reflective professional. Typically, on entrance to their initial teacher education programme, pre-service teachers’ view of education as disconnected accumulation, completion, and ‘presentism’ hinders their access to transformative learning.

This study makes a unique contribution in understanding what breaks this old model of learning. In comparison to the discouragement and loss of hope indicated by much initial teacher education research related to pre-service teachers’ initial

beliefs about teaching, this study indicates some hopeful possibilities. First, the recognition that it is this initial technocratic lens which is a powerful influence on the way pre-service teachers perceive and think about learning means that initial teacher education course work can target this in course work to effect change. Second, this study provides hope for ways which contribute to transforming such an initial technocratic lens to a professional lens. Such change requires that pre-service teachers' initial understanding of the nature of education is identified, engaged, critiqued, and then, where necessary transformed. This study indicates that it is one's perception of education which is the key to the *perception and consideration lens* which in turn has a domino effect across other dimensions such as image of teaching, learning stance, and the role of the teacher educator. The accumulative effect determines the way in which pre-service teachers position themselves in terms of learning intentions and the process of reflection within their initial teacher education course work experiences.

But will such a transition from technocratic to professional lens remain? It would be wise to conduct research which follows those pre-service teachers who have developed a professional perception and consideration lens into their beginning teacher experience. Such research could question whether such development is established enough to continue to shape professional learning and practice. Included in such research would be consideration of school based factors which either hinder or sustain such a lens. Under what conditions does the beginning teacher revert to their technocratic lens? Similarly, what attributes of the school context encourage and sustain a professional lens?

## **2.2 The importance of connectedness: Relational and pedagogical**

In the first instance, two separate, but interdependent types of connectedness are critical to this transformation. The first of these, *relational connectedness*, refers to connections between people: teacher educators with pre-service teachers, pre-service teacher with self as well as other pre-service teachers. While previous literature has indicated links between reflection and relationships, this study has reported why pre-service teachers believe this to be so. The second, *pedagogical connectedness*, refers to connections between the teaching approach utilised by

teacher educators so that pre-service teachers make connections between concepts and self in a manner which can be lived. These connections appear to be critical within the process where one's view of education changes from something one accumulates, to something one inhabits. In relationship to the desired learning, this study found that pre-service teachers valued course work which challenged their perceptions, thinking and assumptions and scaffolded them to develop personally owned and justified knowledge.

This study shows that this inherent relationship between one's view of education and the resultant shape of the pre-service teachers' perception and consideration lens also exists for teacher educators and the institution itself.

### **2.3 Teacher Educators: Part of the answer or problem?**

Teacher educators have been aware for more than three decades of the hindrance factor associated with the initial beliefs pre-service teachers bring to their teacher education. We know they seek pragmatic techniques that 'work'. What this study indicates is the powerful difference which results when teacher educators challenge themselves to be part of the answer to this challenge. To do otherwise is to contribute to the continuance of the problem. A turning point in this study came, when I sought an alternative interpretation to the initial one of resistance to explain the Year Two pre-service teachers' approach to the *Teaching of Science* paper. The resistance interpretation placed all responsive accountability on the pre-service teachers. However, critical consideration within a foray into the learning resistance literature led to the realisation that this interpretation did not make sense. I came to the conclusion that rather than resisting learning, the old mold hindered pre-service teachers' access to the type of learning I valued and sought. This led to a different interpretation for their responses which included a realisation of my own responsive accountability to their apparent dilemma and consequential changes to teaching the course.

Pre-service teachers are partners in the learning journey. They invest time and money to become teachers. As teacher educators, we know they bring inhibiting preconceptions about teaching. We remain part of the problem unless we seek to

address these powerful influences. Unless we move beyond deficit theorising of teacher education, we fall into the same trap as students. We try to build an alternative view of education, including commitment to reflexivity, on unhelpful foundations. This study confirms the importance of ‘developing’ rather than ‘deficit’ approaches to initial teacher education. A deficit approach views the student as entering the programme with a blank slate upon which to write, accompanied by the belief that removal of what they know needs to be removed and replaced with different knowledge. A developmental approach begins with a belief that student teachers bring with them knowledge, understandings and beliefs about teaching, skill, and personal characteristics which attract them to the very responsible role of teacher. Consequently, teacher educators seek to work with what each student teacher brings to the programme (Ingram, 1998), equipping them to identify underlying assumptions and critique these in the light of a developing, personally owned, educational philosophy (Norsworthy, 2002) as appropriate to a particular educational context.

Another contribution this study makes to the field of teacher education relates to the role of teacher educators’ practice. This study has clearly identified the advantages of *pedagogical connectedness* – that is when pre-service teachers experience the desired ‘way of being’ within an integral component of their own on campus course learning. Inherent in such connectedness are the processes of experience as a learner, reflection and then meta-reflection. This has several advantages. Inhabiting or “fleshing out” (Giles, 2001) the theory as lived practice emphasises the integral nature of theory and practice within the teacher educator’s teaching practice and the pre-service teachers’ learning practice. Experiencing, enquiring into, and examining pedagogical connectedness within on campus courses, can encourage pre-service teachers to view on campus course components as part of the ‘real world’ of teaching and learning. Another advantage relates to the teacher educator as model of teaching. Seldom do pre-service teachers think of the work teacher educators do as teaching. At least once a year I have a pre-service teacher say to me, “I wish we could see you teaching”. To intentionally make such links may help change this.

### **3. Contribution to the Field of Reflection**

This study makes three key contributions to the field of reflection. These relate to the need to move from task to stance, to developing a shared understanding of the process, and finally, the value of reflection within coursework.

#### **3.1 From Task to Stance: Connected critical consideration**

First, the baggage that comes with the term *reflection* is problematic and consequently may be more of a hindrance than help (McMahon, 1997; Zeichner & Liston, 1990). For this reason, the need for an alternative descriptor together with the findings of this study, suggests that the phrase ‘connected critical consideration’ has merit. First, choice of the word ‘connected’ reflects the study’s finding for the need for pre-service teachers’ consideration to connect across relational and pedagogical dimensions. Second, both the literature and this study indicate that such consideration needs to be critical – as indicated by pre-service teachers’ identification of the importance of accessing multiple perspectives while establishing justification for their chosen interpretation and learning from experiences and course work. Third, the word ‘consideration’ is indicative of a serious, deliberate, but open-minded thoughtful process, preceding decision-making. It entails giving serious attention to details and seeking answers to previously unasked questions. These ideas are within this study; particularly within findings related to the different ways pre-service teachers perceive and think about their initial teacher education on-campus course experiences.

Findings from this study would also suggest that it is not only the term ‘reflection’ and its baggage which are problematic. The emphasis on reflection as something one does, rather than on being reflexive (something one is) can act as a hindrance. Typically, teacher education provides opportunities for pre-service teachers to ‘do’ reflection. This is problematic if approached by pre-service teachers through a technocratic lens. Given such parameters, reflection becomes, and remains, a task to be completed. This is confirmed when reflections are undertaken in isolation. What this study demonstrates is that the transformative potential of the process of reflection is within the meta-cognitive process - the revisiting of initial reflections. This is for two reasons. In the first instance the meta-cognition works with one’s

own writing which is not external, but personal. Even if, in the first instance, it was written from a task mentality – the revisiting of this work to identify assumptions and preconceptions for the purpose of drawing forward understanding into future experiences includes the dual elements of *connectedness* and *ownership* which this study has identified to be important for transformation.

The meta-cognitive process gives value to the initial reflections as the basis for further knowledge construction. By focusing the meta-cognitive process through higher order questions in ways which lead to personally owned and justified understandings, it is impossible to satisfy the conditions of the initial technocratic lens – there is no one right answer.

### **3.2 Developing a shared understanding of the process**

An interesting observation within this study was the fact that pre-service teachers recognised teacher educators who were reflexive about their work and living and for whom the process of reflection was meaningful in developing rationales and philosophical insight. Similarly, they identify others whose courses were described as focused on too much content. A strong degree of agreement existed in the need for both pre-service teachers and teacher educators to have a shared understanding of what is meant by reflection, together with explicit teaching about the reflective process and its role in professional learning. The need to explore the notion of being and becoming reflexive at the institutional level would include consideration as to how institutional ways of being might encourage, equip and support such.

Resulting from initial phases of this study, reflection was defined as:

A process for improving practice by becoming professionally self aware through identifying assumptions in decisions and responses within the learning/teaching relationship, and judging those assumptions for their appropriateness in the light of a developing and critiqued educational vision. (Norsworthy, 2002, p. 111)

At the end of this study, this definition will better embrace important components of effective pedagogy which moves pre-service teachers from an initial technocratic to professional lens with the following additions:

An *iterative* process for improving practice by becoming professionally self aware through identifying assumptions in decisions and responses within the

learning/teaching relationship, and judging those assumptions for their appropriateness in the light of a developing and critiqued *personally owned* educational vision.

The addition of *iterative* embraces and honours the insight from pre-service teachers' understanding of the importance of multiple phases and revisiting of initial reflections in order to increase awareness of assumptions which shape them. The addition of *personally owned*, similarly captures the importance of personal connectedness so that ownership of learning is secured. Both of these characteristics are important to the process of transformation as indicated through this study. Reference in Chapter Two is made to Harrington's (1992) observation that a variety of understandings of reflection exist but lacking from the literature "... is a theoretical/conceptual framework linking ends and means" (p. 67). The definition as offered above, together with other findings, contributes to such a framework.

### **3.3 Reflection within course work**

Within the field of teacher education, reflection is typically linked with pre-service teachers' teaching practice. In many instances the focus of such reflection is on 'what worked' or 'what I can do better next time'. However, this study sought, gained, and listened to pre-service teachers' understanding about the contribution of course work to the development of a reflective professional. It is clear that course work has the potential to make a significant contribution to the development of a reflective professional. Through accessing pre-service teachers' insights and understanding of their coursework, the study demonstrates that this is through pedagogy that requires pre-service teachers to engage their course work in a connected critical considered manner, rather than to 'do' reflective tasks. This means the emphasis in teacher education is on the development of a reflexive stance directed relationally toward the teaching or learning side of the educational coin. Some pre-service teachers indicate that the requirement to take such a reflective stance becomes 'second nature' and within the professional discourse can focus on any component of the intentional educational endeavour.

This study has identified that the development of a 'way of being' reflexive; is dependent on both relational and pedagogical connectedness as reciprocal and

interrelated characteristics. Relational connectedness is necessary in order to provide the safe dialogical space in which authentic reflective activity can occur and which enables increasing self-awareness. Similarly, pedagogical connectedness is required to prevent reflection from being a task to complete. The meta-reflective activity on initial reflections which require personal connectedness and ownership are keys to changing the initial technocratic lens. This requires an honouring, rather than avoidance, of the paradoxes and questions – something more likely to occur within an institutional environment which values higher order questioning, challenging of the status quo and consequential risk-taking.

### *3.3.1 Implications for teacher educators*

Findings in this study have implications for teacher educators in terms of teaching approaches and assessment design. In the first instance the findings from this study could be included in induction programmes for new teacher educators in order to alert them to the importance of their own modelling of connected critical consideration. In particular it would be important to note the role of higher order questions, challenging assumptions, risk taking, and the need to resist a view of education as acquisition. As with pre-service teachers, when faced with disequilibrium or challenge teacher educators revert to what they know and their own experience of teacher education.

### *3.3.2 Implications for assessment practices*

In the second instance, these findings have implications for the design of assessment tasks with initial teacher education course work. Assessment practices have the potential to interrupt the pre-service teachers' apprenticeships of participation and observation, be an integral component of course pedagogy, and provide for ways of being reflexive. Such assessment practices would enable, in fact require, personal connection leading to ownership, self-awareness and justification. This study suggests that the likelihood of achieving such appears to increase when assessments include multiple phases in which pre-service teachers consider and receive feedback on initial responses in a connected and critical manner.



### 3.2.3 *Implications for institutional practices*

These findings have significant implications for the institutions in which initial teacher education occurs. The same *perception and consideration lens* identified for pre-service teachers and teacher educators can also be in place at an institutional level. If one takes the insights from this study and places them within an institution with a technical lens, then they will take on the priorities of such a view of education.

When teacher education occurs in an environment which emphasises the pre-service teacher as a ‘client’, or EFT (equivalent full time student), a source of income, and payment of that income is based on rates of completion, the lessons learned from an *apprenticeship of participation* will no doubt be reinforced. In such a circumstance, it is not surprising that reflective thinking ceases or at least, is limited once “the obligations of assessed work have been removed” (Brown, 2000, p. 8) and pre-service teachers become beginning teachers (Galvez-Martin, 2003). Inattention to the characteristics and hidden curriculum of the context within which reflection is to occur, may be another reason why the notion and practice of reflection has not produced the heralded and hoped for results (Elliott, 1993; Fendler, 2003; Hoffman-Kipp, Artiles, & Lopez-Torres, 2003; Sankey, 2001).

. . . while the concepts of reflection and reflective practice have become mainstream in the academic and educational research community, professional contexts do not encourage or support, reflective practitioners or reflective practice. (Cole, 1997, p. 7)

It is needful that as teacher educators we increase the attention given to consideration of the ways in which our institutions enable or constrain capacity for all concerned to be, and increasingly to become, the reflexive educators we want to be. As noted in Chapter Seven, of critical importance is the establishment of processes and mechanisms to manage felt disequilibrium and vulnerability. To ignore such will be to choose affirmation of the status quo and to hinder liberation from hegemonic practices and values embedded in institutional discourse.

The study has highlighted the importance of aligning institutional practices with programme goals and intentions. For example, each course outline could be required to clearly indicate how the course and its teaching approach are designed to contribute to the development of reflexive professionals. Implications which are critical include: questioning bureaucratic practices around the development of

course outlines, prioritising the use of time, timetabling, institutional language, and support for teacher educators in their own role as reflective professionals. In terms of practising current learning theory, at least some year three papers ought to allow for co-construction. A particular challenge for initial teacher education situated in universities is the development of relational learning cohorts so that pre-service teachers can develop safe, trusting relationships with a group of peers and at least one teacher educator each year. The required resultant need for teacher educators to collaborate across papers has the potential to challenge the security found in teaching one's specialism and require something of the same vulnerability asked of pre-service teachers. One way forward would be the development of teaching teams for each year programme with a shared understanding of how each course contributes to the development of the reflective teacher who perceives and thinks about teaching and learning through a professional lens. Clearly, it is important to build a closer working relationship between those who teach perspective courses such as those within Clearwater Institute's Educational Perspectives Strand and those who teach Curriculum and Teaching (pedagogy) papers in order to try to mitigate the effects of the theory/practice divide to which this separation contributes.

#### **4. Implications for Further Research**

This study highlights the potential within research endeavours in teacher education which intentionally seek to hear the voices of those who experience our courses. Further refining of a *reflexive critical interpretive* approach to research may be advantageous for its potential to simultaneously promote professional reflexive inquiry into one's practice and generate research open for public scrutiny.

As well as contributing knowledge to the fields of teacher education and reflection, this study identifies some areas for further research – including research into changes made to teacher education at Clearwater Institute as a result of sincerely listening to the pre-service teachers within this study.

#### **4.1 Researching Clearwater Institute's innovative strand**

In response to the findings, the development of a conceptual framework provided shared language and understanding of Clearwater Institute's goals and a tool for focused intentionality when shaping courses and their learning expectations. An outworking of this conceptual framework, and the recognition of the influence of the strand binary, has been the introduction of a new strand. This new strand reflects the thesis' findings and encapsulates the importance of connection to the person who is the teacher and of the reflexive stance. The strand name, Personal Integration and Professional Inquiry, abbreviated to PIPI in everyday parlance, is followed by a particular descriptor for each year. For example: PIPI1: Being and Becoming: Teacher as learner (First year paper), PIPI2: Being and Becoming: Teacher as leader (Second year paper), and PIPI3: Being and Becoming: Teacher as Professional (Third year paper). These papers are grounded in findings which emerged from this study and are experienced within safe dialogical learning spaces (groups of approximately 12-15 and a teacher educator) where the emphasis is on discussion, challenge, and inquiry. Initial indications of hopeful development of reflexivity are very encouraging. However, further research is needful to ascertain the effect of the new PIPI approach with particular emphasis on identifying the degree to which pre-service teachers engage with course content in a connected, critical, and considered manner. As well as researching the overall approach embedded within the PIPI strand, it would be valuable to research the particular contribution of each year course. For example, research needs to occur to ascertain the degree to which the Year One course, *Being and Becoming: Teacher as Learner*, designed to engage and challenge pre-service teachers' initial *technocratic* lens, is effective, and, if it indeed leads to the development of a transformative *professional* lens.

#### **4.2 Teacher educators as models of reflexivity**

This study suggests that research focussed on the notion of *pedagogical connectedness* would be timely. An important focus would be the way in which teacher educators engage the theory/practice relationship in their tertiary teaching and learning as part of the 'real world' of education. What factors influence a teacher educator to ensure that his/her teaching strategies model the desired

learning? And, when they do this, what factors influence them to link their practices with the theory which underpins them? This study suggests that when teacher educators teach their papers through a technocratic lens they will continue to ‘download’ information to their students, giving them what the students say they want, and in doing so, directly or indirectly support them in viewing both reflection and assessments as tasks to be completed. The result of such an approach will be to sustain the old way of learning. Therefore, a related and important focus for further research relates to the role of teacher educators as models of reflexive educators. The way teacher educators teach presupposes a view of education and, consequentially, of teaching and learning. If, as this study suggests, the way teacher educators teach is a significant component of their influence, then it would be wise to undertake further research into how teacher educators model reflexivity and teaching strategies which reflect current understandings of learning theories. As well as the modelling of these, teacher educators can engage pre-service teachers in identifying and engaging the theoretical underpinnings of such practice.

#### **4.3 Neophyte teacher educators’ transition and research**

Linked to the above research foci could be other research into the role of professional learning experiences for new teacher educators as they make the transition from being classroom to tertiary teachers. Typically, this transition occurs without formal or, even informal preparation. Of particular interest to the field of teacher education would be learning experiences which provide reflective experiences related to the design, planning and inhabiting of pedagogical connectedness. Teacher educators are currently under pressure to produce research outputs which contribute to an institution’s research ranking, therefore it is critical that such research contribute to effective professional learning. Reflexive research can indeed do such – as this study illustrates.

#### **4.4 Institutional factors related to connectedness**

The findings from this study also identify some further research which focuses on the institutional context in which teacher education occurs. For example, this study indicates that the way teacher education providers organise papers within its programme is influential on pre-service teachers’ expectations for those

programmes. It is also clear that the departmental source of a paper can affirm the theory/practice divide. Further research into how this is perceived in larger teacher education providers where those responsible for papers may not discuss how each paper contributes to the development of a beginning teacher is significant. One may expect that the asking of such a question may in itself bring change and possibly result in other desirable characteristics (e.g., shared language, identifying common challenges, and across paper integration.). Also, it may be of interest to research the potential which findings within this study related to effective design characteristics of assessment experiences have for tertiary education in general and tertiary teachers in particular. With the emphasis on *relational connectedness* and formative feedback, research could focus on the implications these have for teacher educator priorities and workload allocations. The emphasis on relational connectedness would also have ramifications for staff to student ratios, and therefore becomes critical in this current political setting to funding allocations. Further research on a larger scale would be necessary in order to influence related national and institutional policy and practice.

## **5. Conclusion**

This thesis is about ways initial teacher education course work contributes to the development of a reflective beginning teacher. It provides hopeful insights into approaches which teacher educators can utilise in order to maximise such contribution. It also provides some suggestions about the nature and role of reflection in this process, thus adding to the literature on teacher education and reflection in professional preparation.

There are implications for design, implementation of, and assessment within teacher education programmes, including challenges for institutions where teacher education provision is shared across departments.

Most importantly, it is clear that a pre-service teacher's sense of personal connection across a range of variables and ownership of learning is a key to "new insight into the nature of education"(Doris, MR), which in turn influences the image of teaching which shapes the perception and consideration lens through

which course work is experienced. The foundational view of education which informs the new lens, reflects the etymology of the word and concurs with Dewey's (1938) belief that education is development from within. Rather than education being a commodity to acquire, it is a process of growth and transformation toward a valued 'way of being'. In this new way of learning, the perception and consideration lens is, not technocratic, but professional. Rather than focusing on what a teacher does, the focus is on whom the teacher is and how this influences the teaching and learning process.

A key focus for teacher education programmes relates to the question of the source for the power and motivation to change. Hansen's work (2002) and Korthagen's (2001, p. 6), in the tradition of Dewey (1916) begins from the assumption that "change cannot be affected from outside a person". Dewey believed that there was no such thing as a direct influence of one human being on another, but that influence was indirect and dependent on the quality of the environment in which the targeted learning was to occur. This identifies at least two key challenges for teacher education. One challenge relates to the degree to which teacher educators pay attention to the environment of teacher education, of which teacher educators are one of the dynamic factors. The other challenge flows from accepting the idea that change is dependent on personal engagement. Then, surely, we cannot expect any programme of teacher education to effect change in teachers' behaviours without also effecting change in their personal beliefs, changes to which they must give cognisance and in fact seek. Teacher education faces the challenge to take more notice of who the teacher is as a person. It is this, more than the knowledge or skill acquisition experiences within teacher education programmes, which will have profound influence on what the beginning teacher will or will not learn, but perhaps even more importantly, shapes what he or she will be and become as a teacher. A reflexive stance for *all* concerned is critical in such a process.



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## Appendices

### APPENDIX A: Six Guiding Principles from Mills College

The following information is downloaded from the Mills College website (<http://www.mills.edu/academics/graduate/educ/>) and relate to their graduate programmes in education which are “founded on a commitment to excellence and equity and are supported by the following six principles that permeate our course work and fieldwork.

#### **The Principles**

Collegiality: Those who work with young children and those who teach children of all ages need to develop good working relationships not only with one another, but also with parents and with the students themselves. The Mills graduate programs emphasize the development of collaborative and collegial work in a variety of scenarios including course work, field work and program retreats.

Inquiry and Reflective Practice: Thinking about what we do and why we do it is often a challenge in the day-to-day practice of working with children and youth. One major component of our program is to encourage the use of reflection to consider why we are doing what we do, and why it is a good idea to continue or change. Reflection is encouraged primarily through writing, discussion and collaboration.

Learning as a Constructivist/Developmental Process: Working with children and youth requires an understanding of how children change as they grow. Our program emphasizes the active participation of all learners in the learning process as learners construct new knowledge. Our course work both teaches about theory and puts the theory into action as we encourage our students to construct their own knowledge of children and teaching

Teaching as a Political Act: Many social and political factors in our society, in particular the issues of equity and equal access, affect what happens in our schools and in the way we

parent, care for and provide for children. The importance of these factors is continually considered as we think about our actions both in the classroom and in the larger school communities.

Creating an Ethic of Care: Everyone learns best in safe, supportive environments that tolerate difference of opinion and welcome the diversity of experiences and learning styles. Any action we take has a moral component. One important aspect of the Mills programs is a focus on how to recognize the moral content of our work to create such caring communities, both in our college classrooms and in the schools, classrooms, hospitals, and centers in which we work.

The Acquisition of Subject Matter and Professional Knowledge: Part of learning is acquiring knowledge in the disciplines that are the foundation of our profession and in the disciplines we teach. We believe the ability to apply knowledge, to critique knowledge, to transform knowledge into practice and to develop curriculum to support diverse learners is essential to an education professional. The graduate programs at Mills provide students with opportunities to acquire advanced knowledge and skills in areas of special expertise.

## APPENDIX B: Initial beliefs about Teaching Science

July 2002

Name: \_\_\_\_\_

1. Please describe characteristics of a 'typical' Science teacher.

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2. How do you *feel* about the subject of Science?

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3. How do you *think* about the subject of Science? (ie what are your thoughts about Science)

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4. How important for your development as a primary teacher is this course, *Teaching of Science*. Please explain your answer

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5. Describe three things you *hope* are in this course

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6. How much do you think you will like teaching Science?

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7. At this point in time, what would you say are characteristics of *effective Science teaching* at the primary level.

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8. In order to rank as an excellent course, what would this course, Teaching of Science, be like?

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9. Science knowledge is categorised under different headings or fields of knowledge. List some of the headings and name a few topics that might be studied under each.

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10. Describe an effective or positive learning experience you have had in Science

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11. Do you think boys are better at science than girls? Please explain your response.

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12. The New Zealand Curriculum Framework presents science as ‘essential for understanding the world in which we live and work’. Is this understanding the same for all students? Please explain your response with reference to the role of the teacher of science.

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13. Please rank the following in terms of importance for a teacher to take into account when planning Science lessons.

Rank 1 most important, 4 least important

knowing content	1	2	3	4
knowing what children already know about the topic to be studied	1	2	3	4
children having access to the internet	1	2	3	4
inclusion of 'fun' activities	1	2	3	4
the use of individual projects	1	2	3	4
teacher's attitude to science	1	2	3	4
teacher's attitude to students	1	2	3	4
teacher's self confidence	1	2	3	4
understanding how children think about the topics in science	1	2	3	4
having a clearly defined reason for teaching the topic	1	2	3	4
having access to a science laboratory	1	2	3	4
including activities that help children discover things for themselves	1	2	3	4

Thank-you for taking the time to complete this questionnaire.

Bev Norsworthy

Lecturer

Name of Institute

Address, City

## APPENDIX C: Reflecting about the Teaching/Learning Relationship

### Personal factors

attributed to the learner – such as: prior knowledge, feelings, mood, confidence, self-esteem, enjoyment, personal learning strategies.

### Teaching factors

attributed to the lecturer – such as strategies used, class organisation, clarity of goals and rapport, enthusiasm, modelling.

### Peer factors

attributed to other students such as – encouragement, friendliness, group work, share ideas, and co-operate in tasks.

### Situational factors

attributed to setting – such as: seats, oht, view of screen, atmosphere, activities and environment – class, outside, etc.

### TCS 5256 Teaching of Science

**Topic:**

**Date:**

### A FRAMEWORK FOR REFLECTION:

According to Hoban (2000a, p. 168)<sup>14</sup> the four categories in the box on your left influence our learning. Please use them as guides to analyse, document and reflect on today's learning experience. Write about what you learned, how you learned and why you responded as you did.

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<sup>14</sup> Hoban, G., (2000a). Using a reflective framework to study teaching-learning relationships. *Reflective Practice*, 1(2), 165-182.

## **APPENDIX D: Interview Consent Form**

### **The contribution of pre-service course work to the development of reflective professionals**

I consent to take part in this study which includes participating in one informal and unstructured interview with Bev Norsworthy.

I understand that any information provided within this interview will remain confidential to the researcher and myself. However, should specific information (such as brief extracts from the transcription of interview) be required for inclusion in the PhD thesis, professional presentations or future academic presentations, pseudonyms will be used to protect identity.

I am also aware that I can withdraw from this study at any time and that I have the right not to answer any questions if I so choose. Also I may direct the researcher to not include specific information gathered from the interview in any publication (oral or written).

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Contact information:

\_\_\_\_\_  
\_\_\_\_\_

## APPENDIX E: Suggested Interview Schedule

1. I notice that in this practicum one of the requirements is that you '*reflect on the match between theory and practice*'. What aspects of teaching and learning have you thought or written about in response to this?

Possible Probe Questions:

- Are examples given viewed as applications of theory to practice? theory from practice? other?
2. During your practicum experience do you find yourself referring to course notes?

Possible Probe Questions:

- In what situations would this occur?
3. When you are thinking and planning lessons or units, what influences what you decide to do?

Possible Probe Questions:

- Probe possible influence of factors on choices – test, achievement objectives, learning outcomes, own experience, possible experience during initial teacher preparation, perceived weakness in knowledge for a specific topic
  - Is there a relationship between what or how the children do and a self assessment about your teaching? (for example if the children are sitting a test in a topic, is this a test on how well you have taught?)
  - When you are teaching a unit do you tend to stick to your written plan? What would influence you to alter the plan in any way?
4. How would you describe the role assignments have had in preparing you to be a beginning teacher?

Possible Probe Questions:

- What kind of assessment tasks may have served you better?
  - Why do you think this is?
5. Tell me about the unit you have planned to teach or are teaching during Practicum Six.

Possible Probe Questions:

- Do you anticipate that anything you covered or learned in the Teaching of Science and Technology course will influence anything you do?
- What beliefs shaped or directed you to do .....?
- Why did you choose ..... as the focus for (subject) learning
- Probe for influence of past experiences – either when at school, or during a practicum.

### The Lecturer's Role

6. Lecturers fulfil many roles. Here is a list (these will be on laminated cards as per attached) Teacher, co-learner, model, mentor, motivator, guide, coach, facilitator, educator, instructor, please put them in order of their helpfulness to you and your learning.

#### Possible Probe Questions:

- Would you like to walk me through the reasoning behind the order you have chosen?
- What specific characteristics do the first two roles on your list have that you find particularly helpful to you as a student learning to teach?

7. How would you describe 'learning'? How do you know you have learned something?

#### Possible Probe Questions:

- What is the best 'thing' a lecturer can do to help you learn?
- Probe for match between answer from previous question

8. Have your ideas about teaching, and particularly teaching science changed since the end of last year when you took the Teaching of Science and Technology paper?
  - If yes, how?
  - If not, why not?

9. Throughout your course, including every practicum, you have undertaken reflective exercises. Have you noticed changes over the three years to the way you approach or view these?

#### Possible Probe Questions:

- What sort of changes?
- Or Why no change?
- the role or influence the reflections have?
- Probe for influence of reflective framework such as the one used in Teaching of Science component of last year's paper.

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teacher	model
co-learner	mentor
motivator	guide
coach	facilitator
instructor	educator





## APPENDIX F: Pre-service Teacher Vignette and Final Questionnaire

The following is an invitation to contribute to ongoing development in the field of teacher education. Within this booklet are a range of situations, questions and scenarios related to initial teacher education to which I invite your response.

The material you provide will be used to contribute to the following specific outcomes:

- a) Initially the material will contribute to Bev Norsworthy's research into teacher education with particular emphasis on, What *really happens* inside a teacher education programme? Material provided within this booklet will contribute to conference presentations, scholarly articles, and also her PhD thesis.
- b) Next year INSTITUTE NAME is reviewing its Bachelor of Education (Teaching) programme. Any themes which emerge from this material will also be used to contribute to that process.

The process is expected to take about 45 – 60 minutes and refreshments (food and drink) will be provided during this time.

You have the option for your response to be anonymous. While the data gathered from this process will be used in a number of ways to contribute to the literature on teacher education, at no time will you be identified. For any research report, or resultant scholarly writing, pseudonyms will be used and you are welcome to choose your own pseudonym.

The collection of this data has been delayed to the very latest time in your initial teacher education programme, in order to provide assurance that your involvement in the process will in no way influence any grading or mark you may receive for course activities.

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### CONSENT:

I am familiar with the purposes for which this information is being gathered and that at no time will any information be included in any resulting report or scholarly publication which identifies me.

If reference is made to any of my material, please use \_\_\_\_\_ as my pseudonym.

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(Signature)

**Scenario One:**

Recently INSTITUTE NAME was approached to provide a lecturer to speak to a visiting group of high ranking Singaporean educationalists. In Singapore there has recently been a mandated change in the dominant approach to teaching - from a transmissive style to a more active learning style. The idea was that one of the INSTITUTE NAME staff members would speak to this prestigious group for a about 15 – 20 minutes about “*What we do here at INSTITUTE NAME to ensure that the teachers who graduate from this place are able to involve students in active learning and to develop innovative thinking?*”

In seeking to answer this question, I thought – as staff we know what we think we do, but the students will know what this experience is like for them, ie what we actually do, and how this works for them. So I posed the question to one or two of your year group (like a pilot study) and was very encouraged with the depth of thought and perceptiveness within the responses which came back to me without a moment’s hesitation.

Consequently I invite you to respond to the question as well.

“What do we do here at INSTITUTE NAME to equip and prepare you to be able to develop innovative thinking, and to involve the students you teach in active learning?”

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In stating what is valued (in the Charter and each year's Calendar), INSTITUTE NAME describes itself as an institution committed to developing graduates who are *reflective practitioners*.

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**A. THE STATEMENT:**

1. What does the term, '*reflective practitioner*' mean to you?

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2. In the light of your response above, would you describe yourself as a 'reflective practitioner'? Please circle one response and explain why you have answered this way

**No**

**Yes**

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3. What is *the purpose* for reflection? *Why* should teachers be reflective?

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4. Please describe *one* typical focus for reflection. In other words what might a student teacher, teacher or teacher educator reflect on or about?

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5. Please provide two key questions a reflective practitioner might ask
- a. Question One

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- b. Question Two

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6. Please rank the importance of each of the following as it enables participation in reflection which leads to changed practice. Feel free to add a comment which gives me the reasoning behind your response.

a) Having personal philosophy of teaching

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

b) Commitment to students' learning

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

c) A group to reflect with

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

d) Desire to get correct answer

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

e) Ability to recall what actually happened in a learning, teaching or classroom event

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

f) a pattern to follow for the reflective process

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

g) prayer

extremely	moderately	slightly	not
important	important	important	important at all
☉	☉	☉	☉

h) personal confidence

extremely	moderately	slightly	not
important	important	important	important at all
⊙	⊙	⊙	⊙

i) a belief that there is one best way to 'do teaching'

extremely	moderately	slightly	not
important	important	important	important at all
⊙	⊙	⊙	⊙

## 7. Assessment tasks

Please indicate the potential each of the following assessment task has for contributing to the development of a reflective practitioner:

1. Weekly journal about your learning experience within a course	extremely helpful	very helpful	slightly helpful	not helpful at all
2. Essays	extremely helpful	very helpful	slightly helpful	not helpful at all
3 Portfolios	extremely helpful	very helpful	slightly helpful	not helpful at all
4. Developing unit plans	extremely helpful	very helpful	slightly helpful	not helpful at all
5 Construction activities (such as making a teaching resource)	extremely helpful	very helpful	slightly helpful	not helpful at all



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6. Seminar preparation	extremely helpful	very helpful	slightly helpful	not helpful at all
7. Teaching sample lessons, and then critiquing a video of that lesson	extremely helpful	very helpful	slightly helpful	not helpful at all
8. Examination	extremely helpful	very helpful	slightly helpful	not helpful at all
9. Designing a lesson or series of lessons and justifying your choices in terms of theory	extremely helpful	very helpful	slightly helpful	not helpful at all

11. Please describe the characteristics of an assignment which definitely would encourage your growth as a reflective practitioner.

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**B. THE PRACTICE**

1. The previous section of this questionnaire focused on the need to be a reflective practitioner. This section focuses on how you see this *goal in practice* here at INSTITUTE NAME. In other words what aspects of the programme composition (ie the type of foci which are studied, the type of experiences you have, the way lecturers set up their courses, the assessment tasks) do you see as outworking this commitment to the development of reflective practitioners?

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2. What are the major hindrances to developing reflective practitioners here, at INSTITUTE NAME?

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3. Please indicate the degree to which the following courses contribute to ***your development as a reflective practitioner***. (Not all courses from your programme are included) The final column in the table is where you might expand on a particular attribute of the course you have identified as making a major to your development as a reflective practitioner.

Circle your chosen response:

A = major contribution  
 B = some contribution  
 C = no contribution  
 D = unsure

Course	Overall experience	Content	Lecturer's approach	Assessment tasks	Key component
Learning and Teaching	A B C D	A B C D	A B C D	A B C D	
Teaching of English 1	A B C D	A B C D	A B C D	A B C D	
Teaching of Maths 1	A B C D	A B C D	A B C D	A B C D	
Teaching of Science	A B C D	A B C D	A B C D	A B C D	
Teaching of Social Studies	A B C D	A B C D	A B C D	A B C D	
Teaching of Music	A B C D	A B C D	A B C D	A B C D	
Teaching of Art	A B C D	A B C D	A B C D	A B C D	
Advanced Curriculum	A B C D	A B C D	A B C D	A B C D	
Sociology	A B C D	A B C D	A B C D	A B C D	
Explorations in Teaching	A B C D	A B C D	A B C D	A B C D	
Ideals in Education	A B C D	A B C D	A B C D	A B C D	
Research for teachers	A B C D	A B C D	A B C D	A B C D	
Christian Education 1	A B C D	A B C D	A B C D	A B C D	
Christian Education 2	A B C D	A B C D	A B C D	A B C D	
Maori	A B C D	A B C D	A B C D	A B C D	
Multiculturalism	A B C D	A B C D	A B C D	A B C D	

### C. KNOWING MYSELF

Please indicate your level of agreement with the following statements. Please tick the circle which best matches your level of agreement. If you tick 'agree with reservation' or 'disagree with reservation', please make a comment about the nature of your reservation.

1. This teacher education course required me to understand concepts taught by the lecturers

definitely	agree with	disagree with	Definitely
agree	reservation	reservation	Disagree
⊙	⊙	⊙	⊙

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2. Throughout my teacher education course once an assignment was completed I did not refer to it again

definitely	agree with	disagree with	Definitely
agree	reservation	reservation	Disagree
⊙	⊙	⊙	⊙

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3. As a result of this course I have changed the way I perceive myself

definitely	agree with	disagree with	Definitely
agree	reservation	reservation	Disagree
⊙	⊙	⊙	⊙

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4. I often re-appraise my experience so I can learn from it and improve for my next performance

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
⊙	⊙	⊙	⊙

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5. Sometimes effective learning is characterised by discomfort or disequilibrium

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
☉	☉	☉	☉

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6. Giving lecturers what they believe is the best way to be successful in this course

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
☉	☉	☉	☉

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7. During this course feedback on assignments has influenced my future behaviour

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
☉	☉	☉	☉

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---

8. As a result of this course I have changed the way I perceive others

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
☉	☉	☉	☉

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9. Effective learning is always characterised by being fun

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
⊙	⊙	⊙	⊙

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10. Typically this course has focussed on knowing myself and what I believe

definitely	agree with	disagree with	definitely
agree	reservation	reservation	disagree
⊙	⊙	⊙	⊙

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### E. LOOKING BACK, and LOOKING FORWARD . . .

This section of the questionnaire asks you to think about how you have changed as a learner, and as a teacher during your time here at INSTITUTE NAME.

1. In relationship to *being a learner*, how have you changed over the time you have been a student teacher? For example from Year One to Year Two, or Year Two to Year Three, or from Year One to Year Three?

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- 1a. Please describe or name some specific influences or experiences which have contributed to these changes

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2. In relationship to *being a teacher*, how have you changed over the time you have been a student teacher? For example from Year One to Year Two, or Year Two to Year Three, or from Year One to Year Three?

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- 2a. Please tell me of specific influences or experiences which have contributed to these changes

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3. Please explain briefly why you chose to be a teacher.

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## APPENDIX G: Teacher Educator Vignette and Questionnaire

The following is an invitation to contribute to ongoing development in the field of teacher education. Within this booklet are a range of situations, questions and scenarios related to initial teacher education to which I invite your response.

The material you provide will be used to contribute to the following specific outcomes:

- d) Initially the material will contribute to Bev Norsworthy's research into teacher education with particular emphasis on, What *really happens* inside a teacher education programme? Material provided within this booklet will contribute to conference presentations, scholarly articles, and also her PhD thesis.
- e) Next year INSTITUTE NAME is reviewing its Bachelor of Education (Teaching) programme. Any themes which emerge from this material will also be used to contribute to that process.

The process is expected to take about 45 – 60 minutes and refreshments (food and drink) will be provided during this time.

You have the option for your response to be anonymous. While the data gathered from this process will be used in a number of ways to contribute to the literature on teacher education, at no time will you be identified. For any research report, or resultant scholarly writing, pseudonyms will be used and you are welcome to choose your own pseudonym.

The collection of this data has been delayed to the very latest time in your initial teacher education programme, in order to provide assurance that your involvement in the process will in no way influence any grading or mark you may receive for course activities.

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### CONSENT:

I am familiar with the purposes for which this information is being gathered and that at no time will any information be included in any resulting report or scholarly publication which identifies me.

If reference is made to any of my material, please use \_\_\_\_\_ as my pseudonym.

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(Signature)





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**A. THE STATEMENT:**

In stating what is valued (in the Charter and each year's Calendar), INSTITUTE NAME describes itself as an institution committed to developing graduates who are *reflective practitioners*.

1. What does the term, '*reflective practitioner*' mean to you?

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2. What is *the purpose* for reflection? *Why* should teachers be reflective?

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**3 Foci for Reflection**

- a. Please describe *one* typical focus for reflection. In other words what might a student teacher, teacher or teacher educator reflect on or about?

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**b** Please provide two key questions a reflective practitioner might ask.

Question One

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Question Two

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**4. Assessment tasks**

Please describe the characteristics of an assignment which definitely would encourage students' growth as a reflective practitioner.

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**5.** Please indicate the importance of each of the following as it enables participation in reflection which leads to changed practice.

(Place a tick in the box under the description which best describes your response).

[Note: If you wish to, please add a comment which gives the reasoning behind your response.]

## a) Having personal philosophy of teaching

extremely important	moderately important	slightly important	not important at all

Comment:

## b) Commitment to students' learning

extremely important	moderately important	slightly important	not important at all

Comment:

## c) A group to reflect with

extremely important	moderately important	slightly important	not important at all

Comment:

## d) Desire to get correct answer

extremely important	moderately important	slightly important	not important at all

Comment:

## e) Ability to recall what actually happened in a learning, teaching or classroom event

extremely important	moderately important	slightly important	not important at all

Comment:

f) A pattern to follow for the reflective process

extremely important	moderately important	slightly important	not important at all

Comment:

g) Prayer

extremely important	moderately important	slightly important	not important at all

Comment:

h) Personal confidence

extremely important	moderately important	slightly important	not important at all

Comment:

i) A belief that there is one best way to 'do teaching'

extremely important	moderately important	slightly important	not important at all

Comment:

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**B. THE PRACTICE**

The previous section of this questionnaire focused on the need to be a reflective practitioner.

This section focuses on how you see this *goal in practice* here at INSTITUTE NAME.

Question One of this section asks you to comment on general practices at INSTITUTE NAME, Question Two asks you to comment on your own particular practice, and Question Three then asks you to identify what you perceive to be hindrances to the development of reflective practitioners.

**1. GENERAL:**

What aspects of the programme composition (ie the type of foci which are studied, the type of experiences students have, the way lecturers set up their courses, the assessment tasks) do you see outwork this commitment to the development of reflective practitioner?

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**2. SPECIFIC:**

What aspects of your courses deliberately contribute to the development of reflective practitioners? (Please include any aspect of the course - design components, teaching approaches, assessment task design, etc)

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**3. What do you see as the major hindrances to developing reflective practitioners?**

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**C. LOOKING BACK, and LOOKING FORWARD . . .**

This section of the questionnaire asks you to think about how you have changed as a teacher educator over time –particularly in relationship to your main goals for your students.

1a. In relationship to *being a teacher educator*, please describe some aspects of your practice which have recently (past few years) changed, or which you are seeking to change. For each self-initiated change, please include a description of y for your rationale for the change.

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1b. Please describe or name some specific influences or experiences which have contributed to these changes

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Please explain briefly why you chose to be a teacher educator.

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## APPENDIX H: Release Form for information from Teaching of Science paper

I have read the Participant Information Sheet relating to the research being undertaken by Bev Norsworthy, lecturer for Teaching of Science paper. My signature on this form indicates my willingness to release the indicated material to her for the purpose of her research into ‘the contribution of pre-service course work to the development of a reflective teacher’.

I have signed this release form willingly . . .

The following information is released as indicated for the purposes as outlined in the Participant Information sheet.

Please circle your chosen response.

Reflections from throughout the course

released                  not released

- The information in the pre and post course questionnaire

released                  not released

If chosen for a semi formal interview in the vicinity of 30 minutes,

I am willingly to participate

I am not willing to participate

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

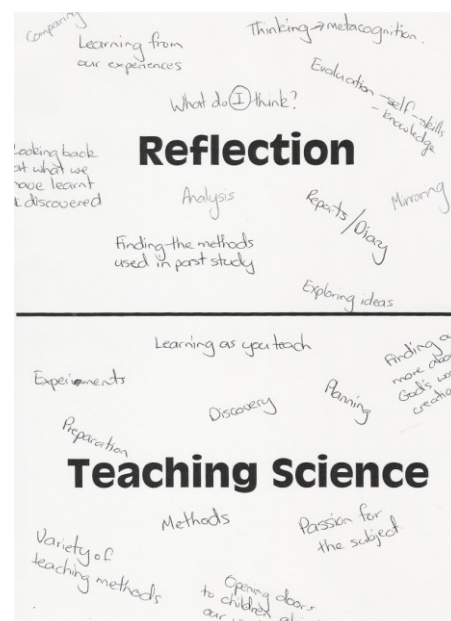
## APPENDIX I: Data Analysis Gestalt-like activity

At the beginning of the Teaching of Science course, students were provided with what looked like a blank piece of paper on their desk. They were told that when they turned the paper over, they would find one word, and one phrase and they were invited to record any words that came to their mind in response to the words they saw.

The word was reflection, and the phrase was Teaching Science. On the right is a sample response.

For the word, reflection, students wrote from 1 to 18 different responses. These responses were then coded in terms of the focus provided. Codes were:

- \* **att** if an attitude was mentioned, ie *honesty*
- \* **dep** if comment inferred that an 'in-depth' or deep activity was involved
- \* **fof** identifies a focus for reflection, e.g. *key ideas*
- \* **pe/k** for mentioning prior experience, or knowledge
- \* **pro** for any word relating to the process involved
- \* **pu** for comments relating to the purpose of reflection
- \* **ref** was used if a student identified a standard of reference, e.g. *absolutes*
- \* **res** if comment mentioned something to be gained – e.g. *new knowledge, or sense of control res*
- \* **sa** for a comment which indicates self awareness – e.g. *What do I think?*, or *self discovery*
- \* **sco** for a response which included an aspect of scope - e.g. *positives and negatives*
- \* **sf** for self or self centred
- \* **sy** was used to indicate a synonym for reflection, e.g. *image*
- \* **time** was used to indicate that a student had identified time as related to reflection, e.g. *thinking time*



What is interesting to note is that the more emphasis a student put on the process of reflection, the less likely they were to nominate self awareness or development as a potential outcome. On the other hand, the more emphasis placed on a nominated purpose for reflection, the more likely they were to nominate self awareness or development.

### Data analysis Example:

#### February Cohort's Gestalt Activity

Responses were gained from 17 students. The results are found in the following table. Each line represents one student's response. Each column represents a category as outlined on the previous page.

	A	B	C	D	E	F	G	H	I	J	K	L	M	O	
	att	dep	foc	pek	pro	pu	ref	res	sa	sco	sf	sy	time		
1	1	1			1	1		2						6	5%
2		1		1	4	3								9	7%
3						1								1	1%
4		1				2		1	1					5	4%
5		1			3	2								6	5%
6					3		1	1			1		1	7	6%
7					2	4			1					7	6%
8					5	1				1	1			8	6%
9				1	6	3			1					11	9%
10				1	1							1		3	2%
11				1	5	2			1					9	7%
12							1		1					2	2%
13	1			1	1		2						2	7	6%
14			1	2	4	5			5					17	14%
15	1	1	1		3	3		1	3		3		1	17	14%
16		1	2		3									6	5%
17					7	1	1					1		10	8%
	3	6	4	7	48	28	5	5	13	1	5	2	4	131	
	2%	5%	3%	5%	37%	21%	4%	4%	10%	1%	4%	2%	3%		

When the data in column E (representing pre-service teachers who identified process) is compared with the data in column I (representing pre-service teachers who noted self awareness) the correlation is -0.18. This tentatively suggests that when more emphasis is placed on research as linked to process, less emphasis is placed on self-awareness.

When the data in column F (representing pre-service teachers who identified purpose) is compared with the data in column I (representing pre-service teachers who noted self awareness) the correlation is 0.72. This suggests that when more emphasis is placed on purpose for research, more emphasis is placed on self-awareness.

## APPENDIX J: Comparing Cohorts Hope for Teaching of Science paper

What I hope is in the course	
February cohort	
Focus for meaning unit	%
<b>About the methodology or approach to the course</b>	<b>25.5</b>
Use groups (2%); model approaches (7.8%); lectures & assignments - easy, practical, relevant (5.9%); practical experiences (9.8%)	
<b>About content</b>	<b>54.8</b>
worldview perspective, nature of science (3.9%); review science content (5.9%); how to use curriculum document (7.8%); focus on children to be taught* (13.7%); ideas on how to teach, techniques, etc. (23.5%)	
<b>About result of the course</b>	<b>19.6</b>
self confidence/passion (5.9%) reason for teaching (2%); notes (related to management of resources, equipment children) to refer to later (11.7%)	

What I hope is in the course	
July cohort	
Focus for meaning unit	%
<b>About the methodology or approach to the course</b>	<b>21</b>
Enthusiasm from lecturer (2%) practical, relevant experiences (15%); fun (4%)	
<b>About content</b>	<b>75</b>
Understanding of science (5%); science knowledge (11%); how to use curriculum document (4%); what to teach (4%); ideas on how to teach, techniques, etc. (33%); provide resources (18%);	
<b>About result of the course</b>	<b>4</b>
Create an attitude that sees value of science to primary school	

<b>What I hope is in the course</b>	
Combined cohorts	
Focus for meaning unit	%
<b>About the methodology or approach to the course</b>	<b>26</b>
Enthusiasm from lecturer, practical, relevant experiences, fun, group work, model/demonstrate methods, easy, practical relevant assignments	
<b>About content</b>	<b>67</b>
Understanding worldview perspective, nature of science, science knowledge, how to use curriculum document, what to teach, ideas on how to teach, techniques, provide resources	
<b>About result of the course</b>	<b>7</b>
self confidence/passion, reason for teaching, notes (related to management of resources, equipment children) to refer to later; create an attitude that sees value of science to primary school	

## APPENDIX K: Contribution of Single Papers to Reflective Practitioner

The following graphs are pictorial representations of data generated by Question 3 in The Practice section of the Pre-Service Teachers' Final Questionnaire.

For your reference the question and some of the table are included below.

3. Please indicate the degree to which the following courses contribute to your development as a reflective practitioner. (Not all courses from your programme are included). The final column in the table is where you might expand on a particular attribute of the course you have identified as making a major contribution to your development as a reflective practitioner. Table for student response was of the following format:

Course	Overall experience	Content	Lecturer's approach	Assessment tasks	Key component
Learning and Teaching	A B C D	A B C D	A B C D	A B C D	
Teaching of English 1	A B C D	A B C D	A B C D	A B C D	

### Key to graphs

Series 1 = Overall Experience with paper

Series 2 = Content

Series 3 = Lecturer's approach

Series 4 = Assessment tasks

Blue = Number of As = major contribution

Maroon = Number of Bs = some contribution

Yellow = Number of Cs = no contribution

Light Blue – Number of Ds = not sure

The following are included in this appendix.

Part A: Individual course component contributions to the development of a reflective Practitioner

Part B: Entire course contributions to the development of a reflective practitioner

**PART A:****Components of course which contribute to development  
of Reflective Practitioner**

ME = Multicultural Education

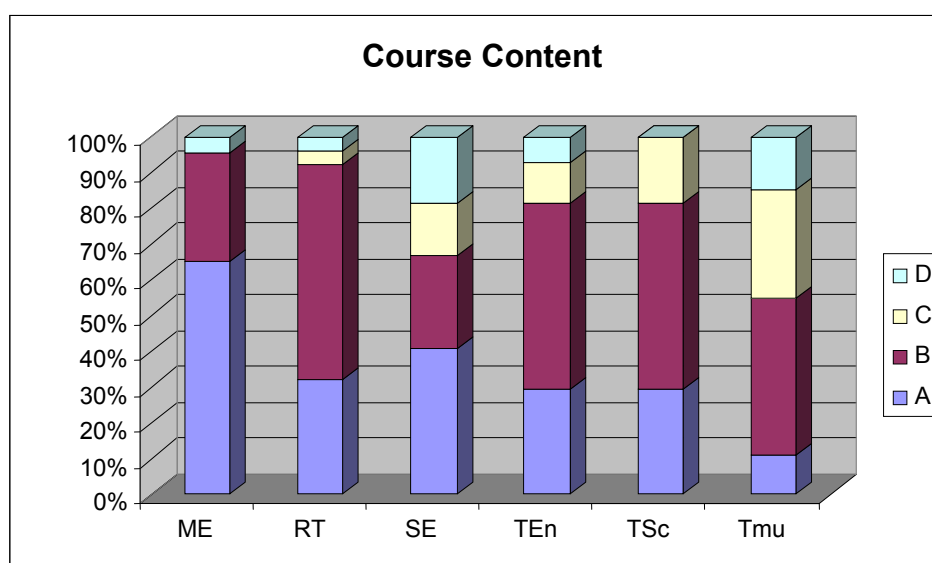
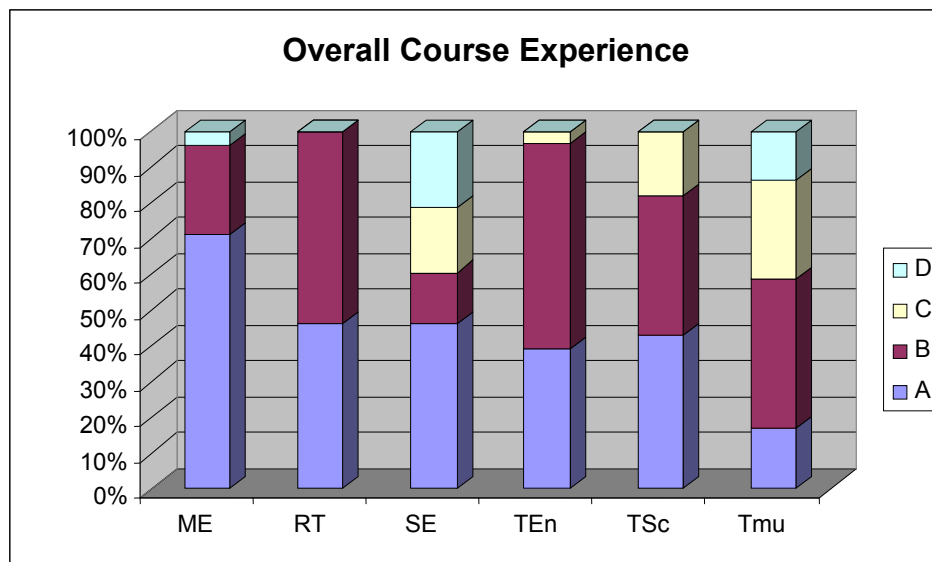
RT = Research for Teachers

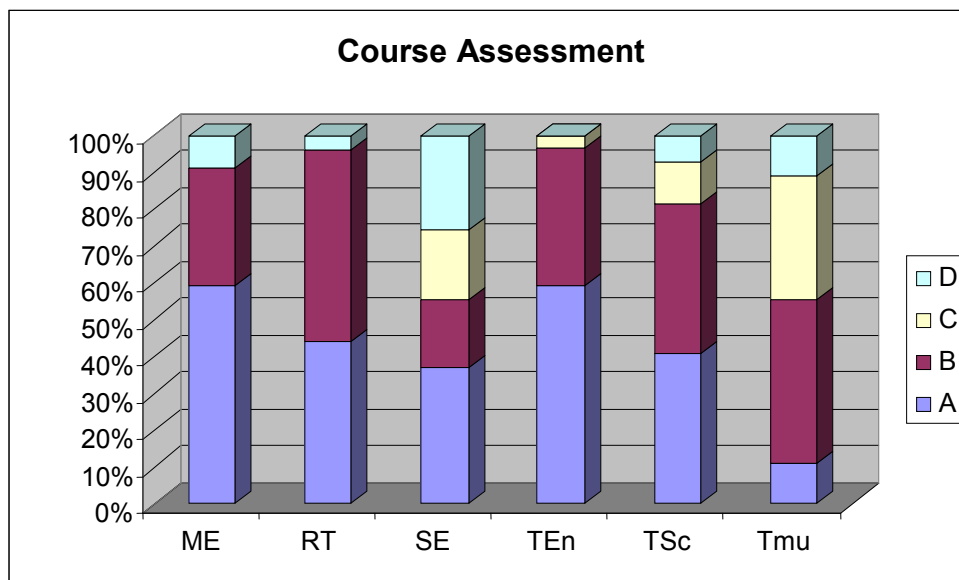
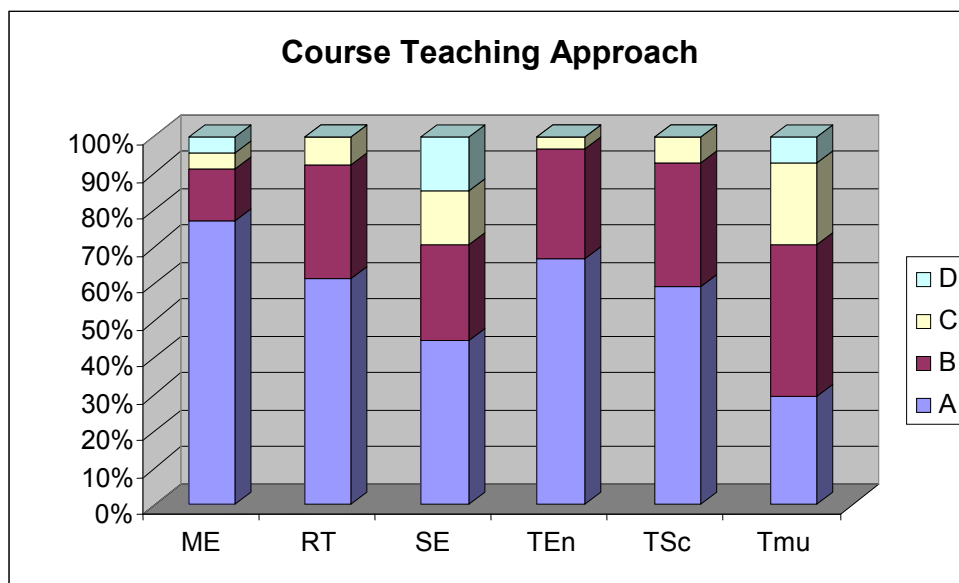
SE = Sociology of Education

TEn = Teaching English

TSc = Teaching Science

Tmu = Teaching of Music

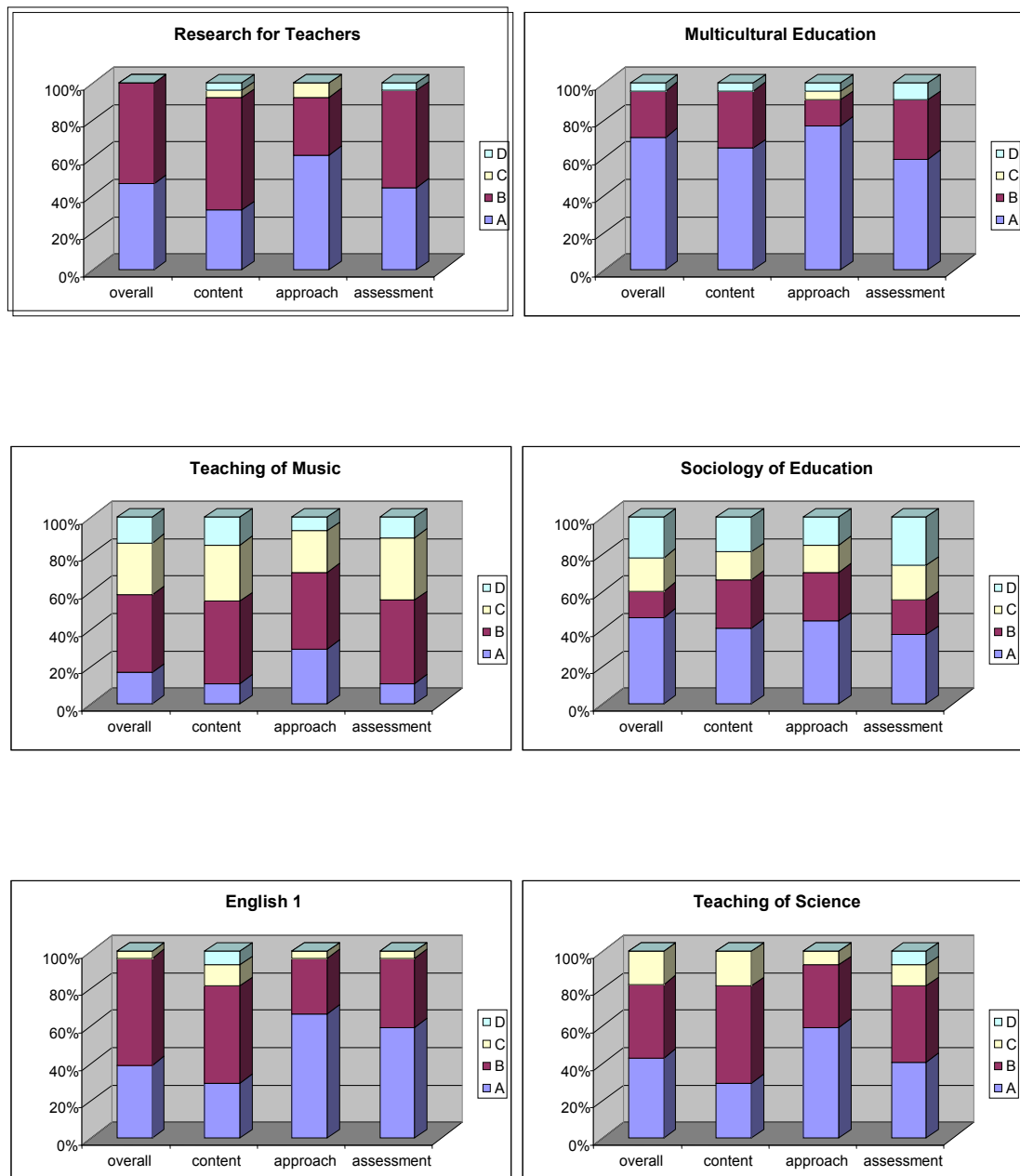






**PART B:****Course Contribution to development  
of Reflective Practitioner**

Graphs only



<b>Pre-service teachers perception of course contribution – Most As</b>				
	<b>Overall experience</b>	<b>Content</b>	<b>Approach</b>	<b>Assignment</b>
<b>most As</b>	Multicultural Education (71%)	Multicultural Education (65%)	Multicultural Education (77%)	English 1 (59%)
	Sociology of Education (46%)	Sociology of Education (41%)	English 1 (67%)	Research for Teachers (44%)
	Research for Teachers (46%)			Teaching of Science (41%)
	Maori 1 (44%)			
	Learning and Teaching (44%)			
	Teaching of Science (43%)			

<b>Pre-service teachers perception of course contribution – Most As &amp; Bs</b>				
	<b>Overall experience</b>	<b>Content</b>	<b>Approach</b>	<b>Assignment</b>
<b>most A &amp; B</b>	Research for Teachers (100%)	Multicultural Education (96%)	Christian Ed 1 (96%)	Research for Teachers (96%)
	Learning and Teaching (96%)	Research for Teachers (92%)	Explorations of Teaching (96%)	Teaching of English 1 (96%)
	Teaching of English 1 (96%)	Learning and Teaching (89%)	Teaching of English 1 (96%)	Multicultural Education (91%)
	Multicultural Education (96%)	Explorations of Teaching (88%)	Teaching of Science (93%)	
	Explorations of Teaching (92%)		Christian Ed 2 ((3%)	
			Research for Teachers (92%)	
	Teaching of Science (81%)		Multicultural Education (91%)	

<b>Pre-service teachers perception of course contribution – Lowest As &amp; Bs</b>				
	<b>Overall experience</b>	<b>Content</b>	<b>Approach</b>	<b>Assignment</b>
<b>Lowest A&amp;B</b>	Teaching of Music (61%)	Teaching of Music (56%)	Sociology of Education (70%)	Teaching of Music (56%)
	Sociology of Education (61%)	Sociology of Education (67%)	Teaching of Music (70%)	Sociology of Education (56%)
			Advanced Curriculum (73%)	
			Teaching of Art (74%)	

<b>Pre-service teachers perception of course contribution – No Ds</b>				
	<b>Overall experience</b>	<b>Content</b>	<b>Approach</b>	<b>Assignment</b>
<b>No Ds</b>	Explorations of Teaching	Explorations of Teaching	Explorations of Teaching	
	Teaching of English 1		Teaching of English 1	Teaching of English 1
	Teaching of Science	Teaching of Science	Teaching of Science	
	Research for Teachers	Christian Education 2	Research for Teachers	
	Christian Education 2	Advanced Curriculum	Advanced Curriculum	
	Learning & Teaching			

<b>Pre-service teachers perception of course contribution – Most Ds</b>				
	<b>Overall experience</b>	<b>Content</b>	<b>Approach</b>	<b>Assignment</b>
<b>Most Ds</b>	Sociology of Education (21%)	Sociology of Education (19%)	Sociology of Education (15%)	Sociology of Education (26%)
	Teaching of Music (11%)	Teaching of Music (15%)	Learning and Teaching (15%)	Ideals in Education (19%)
				Teaching of Maths 1 (15%)
				Teaching of Art (15%)

## Appendix L: Influential Factors on Development and Change Throughout Initial Teacher Education Experiences

### The learning

assignment design	24.30%	
ownership	10.80%	39.6%
links to classroom	4.50%	

### The teaching

lecturers approach	29.70%	
deep thinking, challenge mentally	9.00%	
general positive comment	5.40%	44.1%

### staff

positive relationships	1.80%	
examples from own reflection	0.90%	
value individual	1.80%	6.3%
Lecturer's characteristics	1.80%	

### hindrances

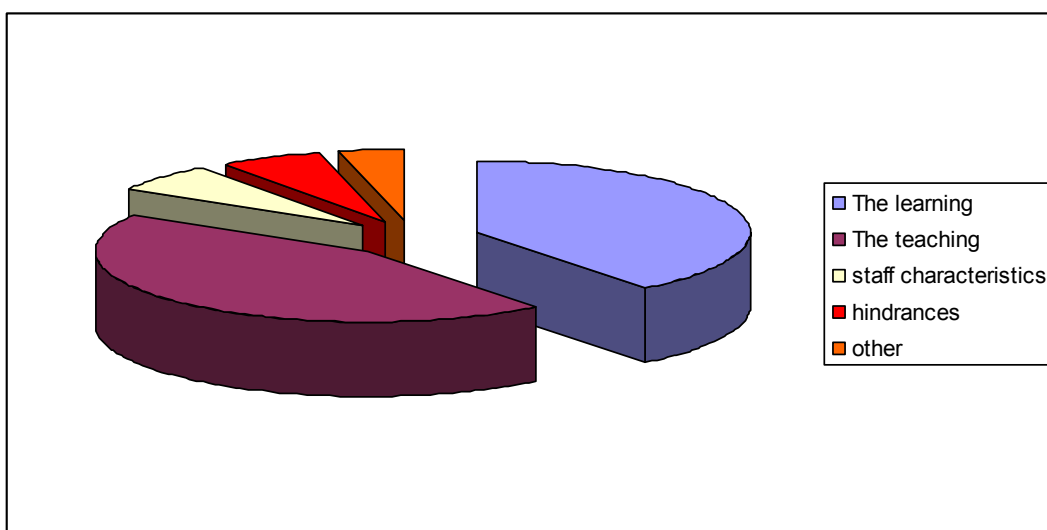
too much content	3.60%	6.3%
wrong ass design	1.80%	
ideology	0.90%	

### other

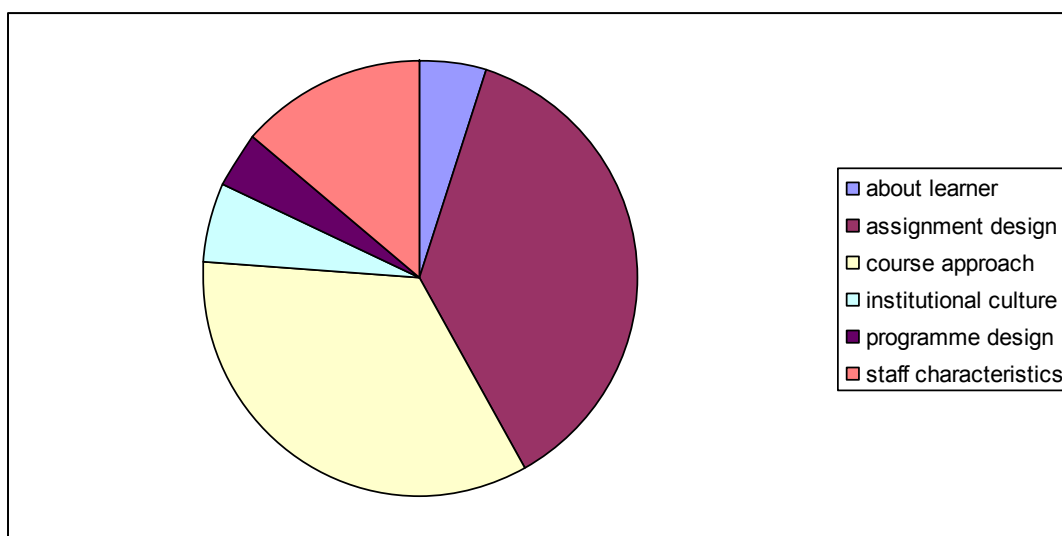
3.80%	3.8%
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100.0%

**Programme composition as institutional commitment to  
development of reflective practitioner**



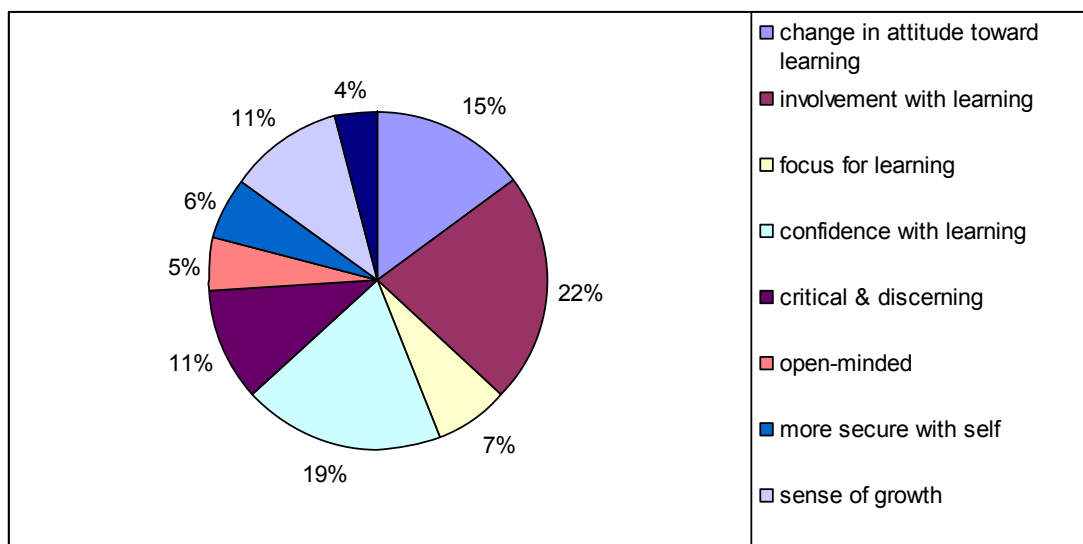
**Programme composition as institutional commitment to development of reflective practitioner**



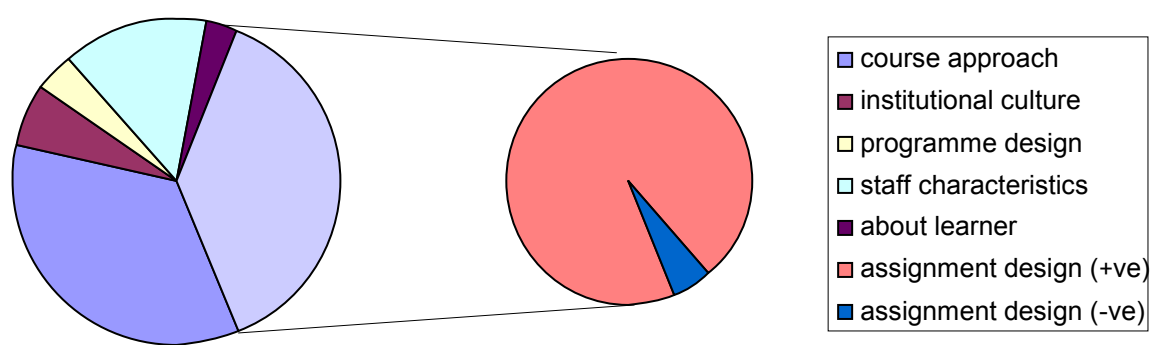
**Influential Factors on change**

### About Assessment Design

(Data from Q7 in Section A, Pre-service teachers Final Questionnaire)

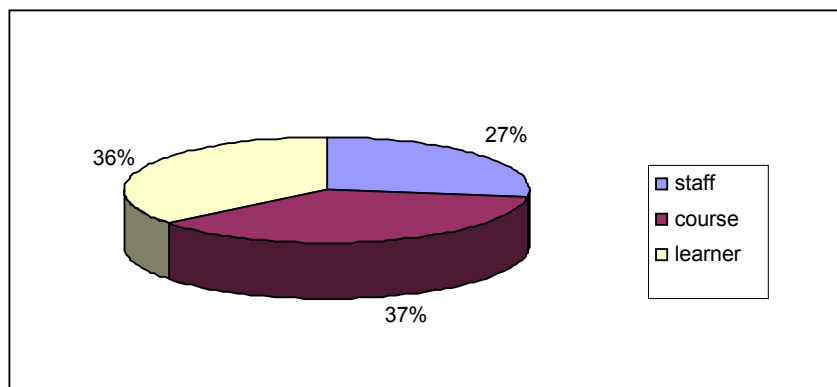


### From Final Questionnaire section: Looking Back and Looking Forward

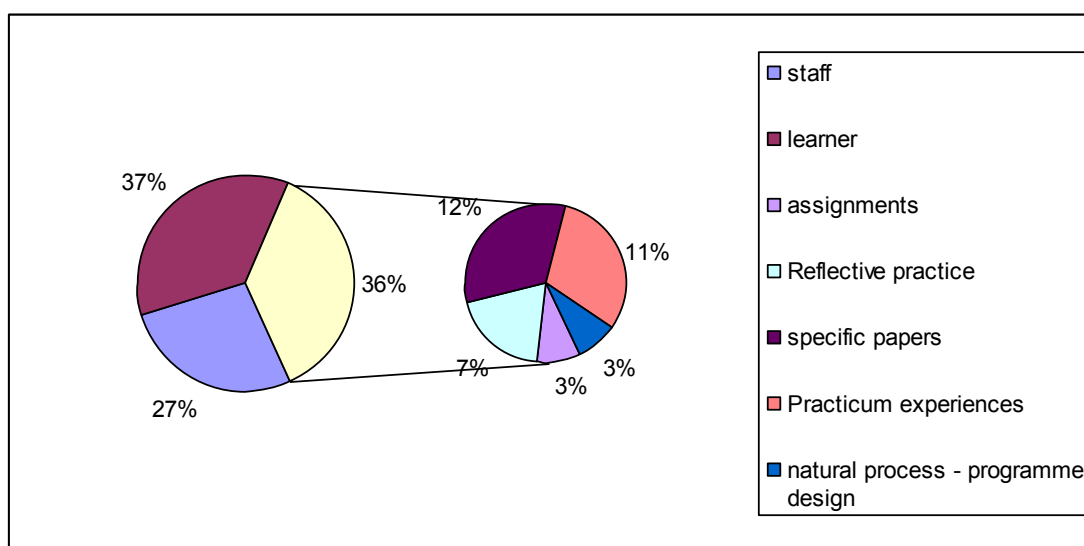


Students indicate both +ve and -ve assignment design

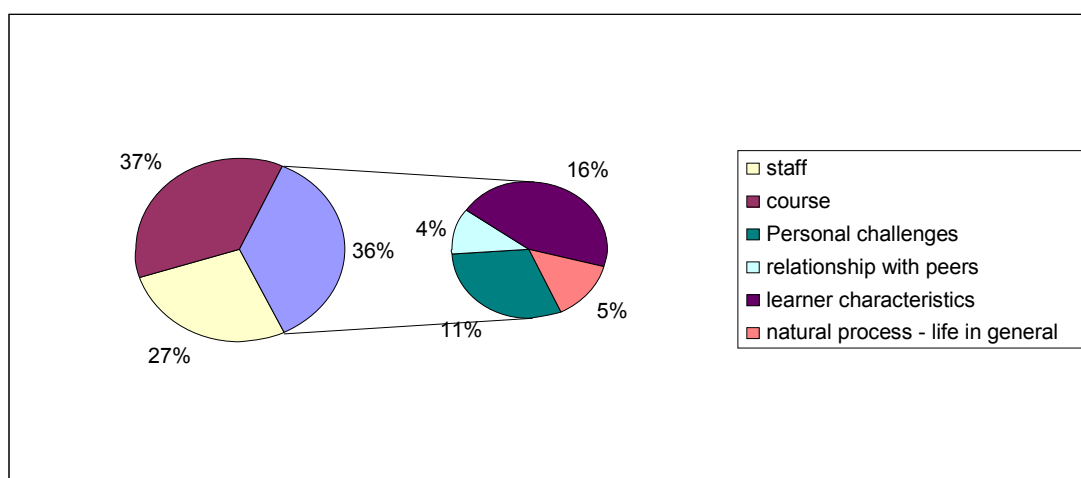
The following three graphs should be read together – the second and third graphs providing more information about the dimensions within the first graph.



**Influences on change**



**Course influences in Change**



**Learner influences on change**

## **APPENDIX M: Response to Summative Marking for Teaching of Science Rationale Essay**

With the opportunity to re read your material, what can you learn from your writing?

What can you learn from my marking? -

- a) the content of the marking
- b) the process of the marking – ie what I have done, the way I have done it

What can you learn from the interaction of these two? ie the way you feel and think about the marking.



At the end of the day, it is the teacher who makes the difference. What is in, or what do you want to be in your head (what do you know), your heart ( your attitude, feeling), your hands (your skill) that will ensure that you are the teacher of science you want to be, and that your students deserve?



## **APPENDIX N: Information Letter**

### **for Year Two Student Teachers participating in the Initial Teacher Education Research Project.**

Monday 15 July, 2002

Dear

As you are aware I am teaching the Teaching of Science paper in Semester Two with Cohort 2A. I am also currently a PhD student with the School of Education at the University of Waikato.

The purpose of this letter is to introduce to you the research study I am currently undertaking within INSTITUTE NAME, the institution where you are studying to be a primary school teacher. Specifically this letter addresses the relationship between the Teaching of Science paper and the research I am conducting for my PhD.

This research is motivated by a personal desire to contribute to quality teacher education in this institute particularly and then more generally through conference presentations and published papers. This project addresses the research question, *“How does pre-service course work within an initial teacher education programme contribute to the development of the reflective professional?”* This research is designed to gain a picture of how current practice is experienced by student teachers at INSTITUTE NAME. In other words, the purpose of the study is to gain an overview of the current understanding of ways in which experiences within an initial teacher education course influence student teachers’ learning and decision-making.

As I would like to access some of the information you provide during the Teaching of Science paper, it is of paramount importance that you know that the Teaching of Science paper is not designed for research purposes. The paper is designed on quality pedagogical principles and the experiences of learning within the course are the focus of my research.

If you agree to participate in the research you will be asked to:

- Take part in a questionnaire pre and post course
- Make your reflections from throughout the course available as data for analysis,
- And possibly take part in a semi-structured informal interview about your learning experiences within the course with particular emphasis on the methodology and the role undertaking regular reflections have within the course.

This research project has ethics approval from both the Ethics Committee at INSTITUTE NAME, the site for the research, and the University of Waikato Ethics Committee, the institute overseeing the research.

You are not required to participate in this research and may withdraw at any time without penalty. On the other hand if you choose to participate, your participation will enrich the knowledge base available to teacher educators as they seek to provide quality effective initial teacher preparation.

If you choose to be involved in this Research Project, you will not be identified in the report unless you specifically grant such permission. You are free to ask me not to use any information that you have given.

Your choice to participate or not participate in this research project will not influence any grade, assessment result, practicum result or relationship with the researcher. To ensure that you will feel confident of this, please lodge your consent form with NAME, Associate Dean who will release these to me at the end of the Teaching of Science course.

If you have any questions at any time you may contact me at:

Phone (DDI):           xx xxxx xxxx

Email:                   b-norsworthy@institutenam.ac.nz

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Your faithfully,

Bev Norsworthy